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Hazardous Waste Trial Burn
Test Plan

For

Pratt & Whitney/United Technologies
400 Main Street
East Hartford, CT 06108

RECON Project No. 1023

March 8, 1985

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I. BACKGROUND

On September 19, 1979 Pratt & Whitney, a division of United Technologies of East Hartford, Connecticut, submitted an application to the Connecticut DEP Air Compliance Unit to construct a Liquid Hazardous Waste incinerator onsite in East Hartford, Connecticut. The Permit to Construct the incinerator was granted on August 9, 1980, and construction commenced immediately. The construction was essentially complete in 1981. Subsequent performance testing indicated excessive particulate emissions resulting in a loss of the necessary State of Connecticut temporary operating permit. The necessary U.S. EPA hazardous waste (RCRA Part B) permit process was started but stalled due to the particulate emission problems.

RECON was originally retained to complete the RCRA permitting process, but logically was instructed to deal with the State particulate emission problems first. This affects the RCRA permit as well, since those regulations have particulate emission standards.

After a review of the system and previous tests results on particulate emissions, RECON recommended a short term test burn for purpose of gathering data for diagnosing the cause of the excessive particulate emissions.

This test was conducted on May 30, 1984. The data generated indicated operating deficiencies in several areas. These deficiences will be corrected prior to the trial test burn.

An incinerator improvement program has been formulated consisting of three phases. The initial phase, a short term test burn was conducted in May 30, 1984. Baseline operating data was established including stack emissions. The second phase includes engineering and modifications to the existing systems to correct deficiences and improve operations. The final phase will be a field demonstration of the incinerator and scrubber, to show that the unit is capable of complying with the performance requirements and incinerator permit conditions. Additional pilot testing of an add-on scrubber system is also included to ensure that particulate emission requirements will be properly addressed. The scheduling of the actual trial burn will be contingent on the success of the incinerator improvement program.

II. SCOPE OF TRIAL BURN

The trial burn will be a multi-phase program test conducted on the Burn-Zol incineration system and will involve up to 12 test runs over several days duration. All EPA/RCRA and parallel state requirements for demonstrating performance capabilities will be addressed. Principal Organic Hazardous Constituents (POHC) tests will be structured to demonstrate performance for a compound that is recognized at least as difficult to incinerate as the actual waste. The incineration system will be fired using waste blends that contain POHC's which realistically represent the anticipated waste profile. The system will be operated in normal modes for combustion and flue gas cleaning. Test durations and detailed protocol are structured to meet analytical requirements using state-of-the-art methodology.

Scrubbed flue gas samples will be collected and analyzed. Performance will be calculated and measured against defined standards; i.e. destruction and removal efficiency **(DRE) = 99.99%** for each POHC; HCl removal efficiency = 99%, and particulate emission rates = 0.08 gr/scf; corrected to 7% oxygen. Other operating data of interest will be monitored and recorded, **including CO concentration in the flue gas, waste feed rates, combustion temperatures,** and **air rates.** Samples of **scrubber water blow down** will also be collected and analyzed.

The trial burn plan will be implemented by RECON Systems Inc. (of Three Bridges, New Jersey) personnel using in-house resources as much as practical. Performance of the specific operations required by the test burn plan will be the prime responsibility of Pratt & Whitney personnel, while technical aspects, e.g., engineering and testing will be implemented by RECON. Pratt & Whitney and RECON plan to meet the Connecticut DEP, and EPA prior to the proposed test burn to review all administrative details, test procedures, and key personnel associated with the trial burn implementation.

III. ENGINEERING DESCRIPTION OF INCINERATOR

The incinerator located at the Pratt & Whitney Concentrated Waste Treatment Plant is a **Burn-Zol Model 272 liquid waste incinerator.** Physically the incinerator is 6'6" O.D. x 21'3" high with a 3" annular space for forced air cooling between the outer stainless steel shell and the steel inner shell. There is then a minimum of 6" of high temperature acid resistant refractory lining. The primary and secondary combustion chambers and the tertiary holding chamber are 5 feet in diameter or 19.5 square feet in plan area.

The primary chamber has two (2) dual fuel Maxon 3" multifire II burners rated at 1.5 MM BTU/hour each. These burners use either natural gas or No. 2 fuel oil and are presently set up for natural gas. At present there are also three (3) nozzles in this chamber for injection of wastes. Each nozzle is air cooled and is accessible from the outside for interchanging nozzles for proper atomization of waste charges.

The secondary chamber has one (1) dual fuel Maxon 4" multifire II burner rated at 2.5 MM BTU/hour. All burners have Protectofier flame safeties on the pilots and 20:1 turn down ratio and proportional control.

The temperature in each burner zone is controlled by a Partlow proportional controller from a thermocouple located in the zone. In the primary zone there is also a second thermocouple that goes to a Partlow high temperature limit control. At the exit of the incinerator is a fourth thermocouple that goes to a Partlow 24 hour circular chart recorder for continuous record of incinerator exit temperature.

Combustion products from the incinerator are ducted to an Eclipse Model 3 HRW (5.18 x 10 26 BTU/HR) **waste heat boiler which generates hot water.** In the inlet duct to the boiler is a thermocouple connected to another Partlow proportioning temperature controller. This controller through a cooling blower and damper, tempers inlet air to the boiler at 1600°F to protect the boiler from overheating. A Pitot tube with indicator is in the duct before this blower to indicate combustion gas velocity. Generated hot water is presently being cooled in a **B&G tube and shell heat exchanger** with the cooling water being dumped to a NPDES permitted cooling water discharge. Eventually this will be used for building heating.

From the boiler, combustion products are then presently ducted to a **Hydronics Model VS 72 venturi scrubber** and an **Hydronics Model PTS 72 packed tower counterflow scrubber** operating with

caustic wash. Both scrubbers are fabricated of lined stainless steel and the tower contains polypropylene Tellerette packing. To protect the packing there is a thermocouple and temperature switch in the inlet duct that will shut down the incinerator before the packing has any thermal damage. There is also a liquid manometer across the venturi to indicate pressure drop. The pressure drop is used as an indication of air velocity and venturi scrubber efficiency. The venturi scrubber is designed for particulate removal while the packed tower has high gas/liquid contact area for removing fine particulate and neutralizing acids in the waste gas stream. At the exit of the scrubbers is a demister system to remove liquid entrainment in the air stream.

The caustic scrubber water is contained in two 400 gallon tanks and circulated through the scrubber system at 90 gpm. The pH is controlled at 7.0 - 8.5 by addition of a sodium hydroxide solution. The pH controller is a Serfilco Model 440.

The air from the demisters is ducted through a damper system to one of two air prime movers. These are New York Blower Series 45 Gl Fans, size 264 with 60 HP motors rated at 4000 cfm at 37" water. One blower is the prime mover with the second used as a back-up. Any failure of the prime mover and the system will automatically switch to the backup . This is controlled

by a pressure switch in the inlet duct to the blowers. The back-up blower is strictly for cool down. No burner operation or waste feed will take place while the back up blower is running.

The exhaust from the blower is directed out of the building. In this exhaust stack is a sampling port that is also valved to the inlet duct of the scrubbers. Either location can be monitored by a Charlton Technology Inc. Incinerator Monitoring System that monitors CO and O_2.

The incinerator system is monitored and controlled by an Industrial Solid State Control, Inc. Model IPC 90 microprocessor. This microprocessor controls the start up procedure to insure that all items are functioning properly before the next step in the operating procedure can be initiated. The microprocessor also controls the ability of the operator to energize the waste feed pumps. This is done by having a relay control power into the pump control panel and this relay is energized from the microprocessor only when all the safety and control interlocks are satisfied. These interlocks are:

1. The Incinerator is at set point temperature.
2. Boiler water at the proper level.
3. Temperature into scrubbers is below 150^{o}F.
4. Scrubber pH in proper range.
5. Main system blower is functioning properly.
6. CO and O_2 in exhaust gases are within set limits.

7. Waste flow rates not exceeding specified limits.

8. Control air pressure within proper range.

Once the pump control panel is energized any one of **four (4)** waste feed pumps can be energized. These are; non hazardous waste oils that feed into waste nozzle **No. 1;** cyanide wastes that feed into waste nozzle **No. 2;** or wax/solvent or solvent mixes that feed into waste nozzle **No. 3.** The line to each of the nozzles has a solenoid valve that is energized open when the pump for that line is energized. Each line also has a Foxboro differential pressure flow transmitter Model E13DM-1KAM2-1FOU with a stainless steel orifice.

The signal is sent to a Foxboro Model 65PV-JG indicator and Model 63R flow switch. Each of the flow indicating systems is calibrated at normal flow rates. The feed rates will be monitored and recorded by the operator. In the piping just before the nozzle is also a sampling valve to collect waste samples for analysis. The nozzles presently in each line are from Sonicore Atomizer Division of Sonic Development Corporation and were picked for atomization to give most efficient burn.

IV. PROPOSED TRIAL BURN DATES

The most likely period when the incineration system will be ready to conduct a trial burn based on the incinerator improvement program and project implementation schedules is Summer 1985 subject to the findings of the testing program scheduled for March - April 1985. Current plans are to conduct the trial burn within 60 days after the EPA and State have approved the test burn program. Pratt & Whitney will notify the EPA and the State at least two weeks before the planned date for starting the trial burn.

VI. STRATEGY FOR TEST BURN PROGRAM

Prior to the scheduled test burn, shake-down operations will be conducted to obtain operator experience and to fine-tune the operational parameters utilizing the proposed hazardous wastes and other suitable feeds. This phase will require approximately thirty (30) days.

In preparation for the test burn, the waste feed will be stored in feed tanks or barrels prior to the test operation. The incinerator will be started and preheated using auxiliary fuel. Prior to starting the test, the waste will be fed for at least one hour to purge the system. Once obtained, steady state conditions will be maintained until triplicate test runs are completed. Readings of pertinent operating conditions will be recorded throughout the entire test period. If interuptions in steady state operations occur, the collection of samples and test data will be discontinued until steady state conditions are resumed.

VII. TRIAL BURN PROCEDURES

A. Waste Composition

Four (4) hazardous waste streams have been selected for this trial burn, cyanide waste, wax/solvent, waste solvent, and cyanide wax/solvent. The fourth waste stream is an optional test burn, depending upon the favorable results of the three (3) previous tests. To facilitate sampling and analysis efforts, synthetic waste(s) will be prepared for this test burn, except for the cyanide waste which will be an actual plating waste. See "Feed Preparation."

Four specific Waste Feeds will be incinerated:

1. Cyanide plating wastes (containing Cyanide)
2. Waste solvents (containing chlorinated solvents)
3. Wax/Solvent Mixtures
4. Wax/Solvent Mixtures simultaneously with Cyanide plating wastes

1. The cyanide wastes are from spent plating and cleaning solutions. The main constituents in this waste are sodium cyanide, potassium cyanide, with minor amounts of copper, and nickel cyanide.

Incineration of cyanides, while not common, has been practiced in the past. Other technologies are mostly based on oxidation and incineration of course is a powerful oxidation process.

Incineration of cyanides does not rely on vaporization of the salts, but rather decomposition which occurs quite readily.

2. The second waste in this test burn will be a wax/solvent mixture. The wax is a nonhazardous straight chain paraffinic used as a masking wax during plating. The wax also contains nonhazardous lubricating oils used in various machinery processes. The solvents contained in the wax are primarily perchloroethylene but includes possibly some 1,1,1-trichloroethane. Typical wax/solvent mixtures can include 25% perchloroethylene.

3. The third waste in this test burn will be a waste solvent mixture. The waste solvent is primarily perchoroethylene but includes some 1,1,1-trichloroethane, and certain nonchlorinated other solvent wastes. These solvent wastes are from the cleaning of various machinery and processes. Previous disposal records indicate a solvent mixture including chlorinated solvents

rated at 6000 to 8000 BTU/#.

4. The fourth waste will be a blend of wastes a and b.

An optional run four may be considered in this test burn program. This waste stream will be composed of cyanide wastes (cyanide), and a wax/solvent waste. the waste stream will be composed of a blend of each of the wastes streams mentioned previously. This test burn is optional depending upon the results from the previous runs.

B. POHC Selection Criteria

In selecting the POHC's to be used in the trial test burn, several criteria were considered including concentration and combustability. These criteria are all important for numerous reasons. Trade-offs or constraints imposed by these criteria were carefully evaluated in selecting representative, meaningful POHC's.

Thermal stability of organic compounds must be considered in examining their behavior in the combustion unit. EPA's typical approach to trial burns is to specify POHC's so that results can be extrapolated to compounds of similar or lower thermal stability. In the selection, the EPA's typical parameter is the heat of combustion (or incinerability index). To justify a compound for POHC selection, the

available waste profile data references were reviewed and a list was prepared (see Table I) of those compounds which are understood to be most prevalent in the wastes on site, and in addition, which are typical or representative of most other identified materials in the profile. Key data for those compounds are noted in Table I and potential POHC candidates are identified and are also found in the list of hazardous constituents in 40 CFR Part 261, appendix VIII.

C. POHC Selection

1. Cyanide Waste

As mentioned previously, the cyanide waste stream contains sodium cyanide, potassium cyanide, with minor amounts of copper, and nickel cyanide. Their EPA hazardous waste numbers are P106, P098, P029, and P074, respectively; and are found in the list of hazardous constituents in 40 CFR Part 261; Appendix VIII. Therefore, **total cyanide (CN) has been selected as the POHC for this waste.**

2. Wax/Solvent Waste

The wax is in a heated solution with solvents, primarily perchlorethylene, but includes some 1,1,1-trichloroethane

and oils. Perchlorethylene and 1,1,1-trichloroethane are more likely candidates for selection as a POHC. The heat of combustion for these two compounds are 1.19 Kcal/gram and 1.99 Kcal/gram, respectively. **Perchlorethylene is a major constituent in this waste stream**, and the EPA's incinerability ranking is quite low. Therefore, **it has been selected as the POHC for this waste.**

3. Waste Solvent

As mentioned previously, the waste solvent stream mainly contains percholorethylene and 1,1,1-trich-oloroethane, which are found in the list of hazardous compounds 40 CFR Part 261, Appendix VIII. **The POHC selected for this waste stream will be perchloroethylene** due to the low heat of combustion (1.19 Kcal/gram) and, since it is a predominant component in this waste stream.

4. Cyanide Waste/Wax/Solvent Mixture

The two POHC's selected are total cyanide and perchlolorethylene. As mentioned previously, perchlorethylene has a very low heat of combustion and therefore a low EPA incinerability ranking. The heat of combustion for the cyanide cyanide waste is essentially zero. Both of these appear on the list of the most prevalent Appendix VIII (40 CFR Part 261)compounds in the waste profile and are good representatives of the more difficult to destroy compounds.

Table I

WASTE CHARACTERIZATION

Nozzle No.	Waste	Hazardous	POHC	Chlorine % (wt)	Heat of Combustion BTU/lb	Ash % (wt)	Water % (wt)	Remarks
1	Oil	No	None	0	12,000 to 20,000	Neg	Neg	May be used as auxiliary fuel for aqueous wastes and low BTU content solvent feeds
3	Wax/slv	yes	perchloro-ethylene	25-35	10 to 13,000	LT 1	LT 1	May be used as auxiliary fuel for aqueous wastes and low BTU content solvent feeds
3	Solvents	yes	perchloro-ethylene	LT 75	6,000 to 8,000	Neg	Neg	May require auxiliary fuel
2	Cyanide plating	yes	cyanide	0	0	35	65	Will require auxiliary fuel

The cyanide-wax/solvent test burn feeds will be prepared as described previously and feed separately. Enough feed will be prepared for all three (3) required tests.

Table II

PREPARED WASTE FEED CHARACTERISTICS

Waste	Nozzle No.	Prepared Waste	POHC	Chlorine % (wt)	Heat of Combustion BTU/lb	Ash % (wt)	Water % (wt)	Remarks
Cyanide Plating	2	No actual	Cyanide	0	0	35	65	Requires auxiliary fuel
Wax/ Solvent	3	75% wax 25% perchloroethylene	Perchloroethylene	21	12,600	Neg	Neg	
Solvents	3	37½% perchloroethylene 37½% 1,1,1-trichloroethane 25% non-hazardous waste oils or solvents	Perchloroethylene	62	7,000	Neg	Neg	Requires auxiliary fuel
Cyanide Plating plus wax/solvent	2 & 3	Actual aqueous plating waste plus wax/solvent prepared feed as indicated above	Cyanide & perchloroethylene	0/21	0/12,600	35/Neg	65/Neg	Requires auxiliary fuel

IX. OPERATIONAL PROCEDURE

Four test runs are planned (three definite and one optional), as outlined in Table III. The incinerator and associated equipment will be generally operated as described in Section III, with the feed rates and temperatures varied as required by the specific waste and as predicted and illustrated in Table III. These firing conditions may be modified as a result of experience gained during testing scheduled for Spring 1985 and additional experience obtained during shakedown operations just prior to the test burn.

Prior to the scheduled test, the test schedule will be developed, indicating the order of the various wastes to be burned. Prior to the initiation of each test, the incinerator will be brought up to and stabilized at approximate normal operating temperatures on auxiliary fuel and possibly non-hazardous wastes. Operation with the hazardous waste feed will then occur for a period of time necessary to again stabilize the incinerator and adjust the various operating parameters for best burn conditions. After a minimum period of one hour to allow for purge of the waste feed lines, the test may be started.

Table IV lists the additional external incinerator system operating and performance parameters for the hot water boiler and the scrubbing system.

Table III

PREDICTED OPERATING CONDITIONS FOR TRIAL BURN

Waste	Nozzle No.	POHC	Feed Rate Total lb/hr	Feed Rate Cl_2 lb/hr	Primary Heat Input MMBTU/hr			Type Aux Fuel	Secondary Burner Firing Rate MMBTU/hr	Total Incinerator Heat Input MMBTU/hr	Total Incinerator Excess Air %	Flue Gas Temp °F	Flue Gas Vol SCFM	Total Retention Time Sec
					Waste	Aux Fuel	Total							
Cyanide Plating	2	Cyanide	200	0	-0.37	6	5.63	non-hazardous waste oils & gas	2.5	8.13	79	2140	2790	1.40
Wax/Solvent	3	Perchloro-ethylene	430	90.3	5.42	0	5.42	gas	2.5	7.92	80	2134	2660	1.49
Solvents	3	Perchloro-ethylene	700	434	4.86	0	4.86	gas	2.5	7.36	83	2050	2510	1.66
Cyanide Plating & Wax/Solvents	2	Cyanide	350	0	-0.64	0	5.66	gas	2.5	8.16	75	2070	3008	1.34
	3	Perchloro-ethylene	500	105	6.3									

1/ DON'T AGREE W/ FOLLOWING TABLE IV

Table IV

ESTIMATED INCINERATOR SYSTEM OPERATING PARAMETERS

Wastes	ALL
Flue Gas Vol SCFM	2500 to 3000
Flue Gas Temp. ^{o}F	2000 to 2100
Tempering Air SCFM	600 to 800
Hot Water Boiler Air Inlet Temperature Max ^{o}F	1800
Hot Water Boiler Air Inlet Design ^{o}F	1600
Scrubber Quench Enterin Air Vol. SCFM	3100 to 3800
Scrubber Quench Enterin Air Temperature ^{o}F	250
Venturi Throat Leaving Air Temperature ^{o}F	120
Scrubbing Water (Quench & Throat) GPM	38
Scrubbing Water Entering Trap ^{o}F	110
Scrubbing Water leaving Temp. ^{o}F	120
Packed Tower Receive Water GPM	38
Scrubber Water Blow Down Rate, GPM	3
Scrubber Water Ph	7 to 8.5
<u>Design Details</u>	
Venturi Throat Pd "wc	22
Venturi Throat Open Area, FT^2	0.246
Packed Tower, Dia, FT	5'-0"
Superficial Bed Velocity, FPS	2.97
Packing Height, In.	43
Packed Tower Pd, "wc	2-3

X. Sampling Methods

1. POHC

A modified EPA Method 5 (MM5) train will be employed as suggested by Sampling and Analysis Methods for Hazardous Waste Incineration, First Edition; "A Guideline Document," U.S. EPA Industrial Environmental Research Laboratory, and Supplement to SW 846, Section 1.2.1.8 "Modified Method 5 Sampling Train, Scope and Application," 1983.

The flue gas testing procedures will closely follow that of Method 5 for isokinetic sampling at a estimated rate of about 0.5 cubic feet of gas per minute. Over a minimum one (1) hour test period a total sample volume should equal 30 cubic feet minimum and therefore yield measurement amounts of the targeted compounds for the four different waste blends within detection limits.

The components of the sampling train including the impinger solutions will be operated and recovered according to prescribed procedures outlined in the noted document. DRE calculations will be based upon the measured amounts of the targeted compounds in the feed and data from stack emissions of the POHC.

2. Sampling and Analysis for Determination of Total Particulates and Hydrochloric acid.

A. Measurements of total particulate emissions is also planned. Test methods are proposed to follow U.S. EPA Method 5, which include the usual probe and filter workups. Also, metering of incinerator fuel is planned with calculating emission values based on correction to 12% CO_2 (excluding contribution from fuel if applicable). Integrated gas samples will be taken and orsat analyzed during each test for the purpose. This sample data will be used to report the hazardous waste standard for particulates at 7% O_2.

Isokinetic sampling for items 1 and 2 will follow test locations criteria as per US EPA Method 1. The stack size and layout of gas flow has been determined and proper test ports and appropriate number of sampling points are shown in the Appendix A; "Test Protocol".

B. Hydrochloric Acid; the condensate (impinger catch) is to be determined by analysis for chloride ion concentration. This value is then ratioed to HCl concentration and calculated acid emissions.

3. Sampling and Analysis for Determination of Carbon Monoxide, and Total Organic Compounds.

A sampling train similar in design to the one referenced in US EPA method 10 is proposed for use for this testing. The midget impingers catch (distilled/D.I. Water) or condenser, plus 80 liter capacity Tedlar bag will permit sample recovery and measurements for:

A. Carbon Monoxide; stack gas to be collected at one (1) liter per minute for a 60 minute period; intergrated sample to be analyzed on Thermal conductivity gas chromatograph, and CO response quantified against known standard.

B. Total Hydrocarbons; a second aliquoit of the gas sampled will be extracted from the bag and run on GC/FID for comparison of hydrocarbon response versus standard. Also, a portion of impinger catch will be directly injected for analysis of condensed organics. Responses for both phases of the sample will be calculated and added together for total organic content at stack conditions (as given carbon number, e.g. methane c_1).

It is anticipated that the Method 10 gas sampling train will be run for a 60 minute period which will coincide with the particulate or POHC sampling. The total gas flow, gas moisture contact, and molecular composition measured during either of these tests can be applied to the gas sampling calculations.

4. Sampling and Analysis for Nitrogen Oxide Emissions

Testing for this parameter will employ US EPA method 7. Again, as noted for item 3 gas testing, these samples will be collected along with particulate or the target POHC tests and flow data, etc. will be used for mass emission rate calculations.

5. Sampling and Analysis for Heavy Metals

Measurement of the priority pollutant heavy metals which are expected to be present. (As, Cd, Cr, Cu, Ni, Ag, Zn,) is also planned. These metals will be collected in the Method 5 sampling train. The probe wash, filter and impinger (enhanced by an extra impinger containing 0.1 $NHNO_3$) catch will be analyzed for the aforementioned heavy metals. Via atomic adsorption spectrometry and flow data, etc.. will be used for mass emission rate calculations.

6. Sampling and Analysis for Total Cyanide

Measurement of total cyanide is also planned. This ion will be collected in the Method 5 sampling train. The probe wash, filter, and impinger catch will be analyzed for total cyanide using wet chemistry (Method A252). A copy of the laboratory procedure for total cyanide is shown in Appendix B.

Table V

ANALYTICAL PARAMETERS FOR TEST BURN

GROUP	ANALYTICAL PARAMETERS
A	Heat Content, ash, density, viscosity, elemental (C,H,N,O,S, organic CL,)
B	EP Toxicity (heavy metals), % drainable water
C	Oxygen, CO_2, CO, and NO_x; particulates, HCl, Total Hydrocarbons, heavy metals.
D	Priority Pollutant, heavy metals - Al, Cd, Cr, Cu, Ni, Ag, Zn

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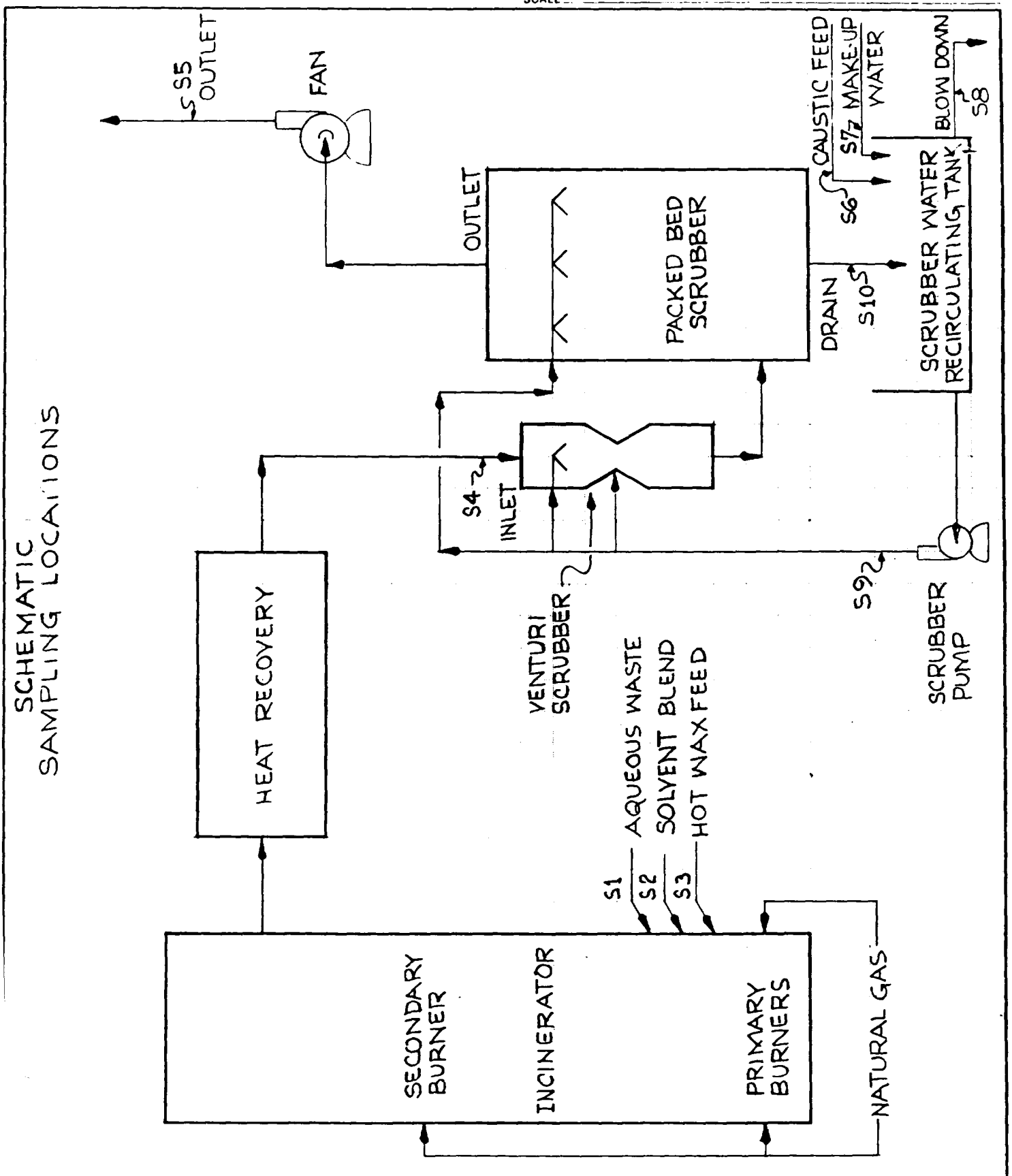


Table VI

Cyanide Feed

Run No. 1

Sample Location	Description Sample	Sampling Method (3)	Analysis (4)	Number of Samples	Type of Sample
S1	Waste cyanide	S004	Group A & D + cyanide	3	composite (1)
S6	Caustic feed solution	S004	cyanide	3	composite (2)
S6	Make-up water	S004	cyanide	3	composite (2)
S8	Blowdown	S004	Group B & cyanide	3	composite (1)
S9	Scrubber feed solution	S004	cyanide	3	composite (1)
S10	Scrubber discharge solution	S004	cyanide	3	composite (1)
S4	Scrubber inlet	Method 5 & 10	Group C & cyanide	3	isokinetic
S5	Scrubber outlet	Method 5 & 10	Group C & cyanide	3	isokinetic

'1) Four (4) composites of 1 hourly samples per test run (assume 1 hour/test run). A two liter sample will be taken.

'2) One caustic sample will be taken during each test.

(3) Sampling methods as described in "Sampling and Analysis Methods for Hazardous Waste Incineration," EPA Contract No. 68-02-3111, February 1982.

(4) See page 32 for specific parameters in each group.

Table VII
Wax/Solvent

Run No. 2

Sample Location	Description Sample	Sampling Method (3)	Analysis (4)	Number of Samples	Type of Sample
S3	Wax & solvent	S004	Group A & percholoroethylene	3	composite (1)
S6	Caustic feed solution	S004	percholoroethylene	3	composite (2)
S7	Make-up water	S004	percholoroethylene	3	composite (2)
S8	Blowdown	S004	Group C & percholoroethylene	3	composite (1)
S9	Scrubber feed solution	S004	percholoroethylene	3	composite (1)
S10	Scrubber discharge solution	S004	percholoroehtylene	3	composite (1)
S4	Scrubber inlet	Method 5 & 10	Group C & percholoroethylene	3	isokinetic
S5	Scrubber outlet	Method 5 & 10	Group C & percholoroethylene	3	isokinetic

(1) Four (4) composites of 1 hourly samples per test run (assume 1 hour/test run). A two liter sample will be taken.

(2) One caustic sample will be taken during each test.

(3) Sampling methods as described in "Sampling and Analysis Methods for Hazardous Waste Incineration," EPA Contract No. 68-02-3111, February 1982.

(4) See page 32 for specific parameters in each group.

Table VIII

Solvent

Run No. 3

Sample Location	Description Sample	Sampling Method (3)	Analysis (4)	Number of Samples	Type of Sample
S2	Solvent waste	S004	Group A & percholoroethylene	3	composite (1)
S6	Caustic feed solution	S004	percholoroethylene	3	composite (2)
S7	Make-up water	S004	percholoroethylene	3	composite (2)
S8	Blowdown	S004	percholoroethylene	3	composite (1)
S9	Scrubber feed solution	S004	percholoroehtylene	3	composite (1)
S10	Scrubber discharge solution	S004	percholoroethylene	3	composite (1)
S4	Scrubber gas inlet	Method 5 & 10	Group C & percholoroethylene	3	isokinetic
S5	Scrubber gas outlet	Method 5 & 10	Group C & percholoroethylene	3	isokinetic

(1) Four (4) composites of 1 hourly samples per test run (assume 1 hour/test run). A two liter sample will be taken.

(2) One caustic sample will be taken during each test.

(3) Sampling methods as described in "Sampling and Analysis Methods for Hazardous Waste Incineration," EPA Contract No. 68-02-3111, February 1982.

(4) See page 32 for specific parameters in each group.

Table IX

Cyanide/Solvent
Optional

Run No. 4

Sample Location	Description Sample	Sampling Method (3)	Analysis (4)	Number of Samples	Type of Sample
S1	Cyanide waste	S004	Group A & D & cyanide	3	composite (1)
S2	Solvent waste	S004	Group A & D percholoroethylene	3	composite (1)
S6	Caustic feed solution	S004	percholoroethylene & cyanide	3	composite (2)
S7	Make-up water	S004	Group B, percholoroethylene & cyanide	3	composite (2)
.3	Blowdown	S004	Group B, percholoroethylene & cyanide	3	composite (1)
S9	Scrubber feed solution	S004	percholoroethyene & cyanide	3	composite (1)
S10	Scrubber discharge solution	S004	percholoroehtyene & cyanide	3	composite (1)
S4	Scrubber gas inlet	Method 5 & 10	Group C, percholoroethylene & cyanide	3	isokinetic
S5	Scrubber gas outlet	Method 5 & 10	Group C, percholoroethylene & cyanide	3	isokinetic

(1) Four (4) composites of 1 hourly samples per test run (assume 1 hour/test run). A two liter sample will be taken.

(2) One caustic sample will be taken during each test.

) Sampling methods as described in "Sampling and Analysis Methods for Hazardous Waste Incineration," EPA Contract No. 68-02-3111, February 1982.

(4) See page 32 for specific parameters in each group.

XI. MEASUREMENT OF WASTE FEED MATERIALS

Since the test burn consists of synthesized waste of various combinations thereof, a sampling/analytical plan is very important to accurately identify the feed materials. These materials will be contained in 55 gallon drums or appropriate tanks prior to the incinerator test burn. The feed materials will be prepared in accordance with the specifications outlined in Section VIII "Feed preparation,".

Special care will be taken when sampling volatile liquid samples. An inert sample line will be connected into the collection vessel via a valve. The sampling line and teflon bottle will be rinsed thoroughly with liquid waste prior to installing the sample line. A minimum of 2 liter sample will be taken over five minutes. The sample shall be well sealed to avoid degassing. Four samples will be taken during each test, and composited into one sample for each run (3 tests/run). Tables VI, VII, VIII, XI, shows the frequency of sampling, type of sampling, parameters to be measured for each trial burn.

XII. MEASUREMENT OF LIQUID EFFLUENT

Scrubber feed solution, scrubber discharge solution, make-up water and blow down will be sampled and analyzed similiar to the liquid waste feeds. Due to the recirculating loops in this

system, great care will be taken to sample at the locations identified in the aforementioned tables and at time periods to ensure the unsteady state samples are not obtained. Four grab samples per run will be taken as described earlier for liquid waste feed. These samples will be composited into one sample per test series.

XIII. MEASUREMENT OF CAUSTIC FEED SOLUTION

Caustic liquid will be sampled and analyzed similar to the liquid waste feeds. One sample will be taken during the test period. It is expected that the caustic will be changed for each individual test to prevent any contamination from the previous runs. The sampling methods and analytical procedures are drawn on the aforementioned tables.

APPENDIX A

STACK TEST PROTOCOL SUBMITTAL

TO:

RE: PRATT & WHITNEY
E. Hartford, CT
Brun-Zol Incinerator

ATTN:

Contact: Charlie Johnson
Phone No.203-565-4321
RECON Project No. 1023C

This protocol is submitted for stack testing planned by RECON SYSTEMS, INC. for the above referenced client.

Source to be tested: Scrubber Outlet
ID No.

Applicable permit and/or
certificate numbers

Approximate Date of Testing: Summer 1985

For Isokinetic Testing, if any

Stack diameter or dimensions	14.25" x 13.75"
Nearest upstream disturbances	127.75
Nearest downstream disturbances	30"
EPA Distance "A" 9.9	EPA Distance "B" 2.3
Proposed number of sampling points	12
Proposed time per sampling point	5 minutes
Proposed total stack gas sample size	30 dry standard ft^3

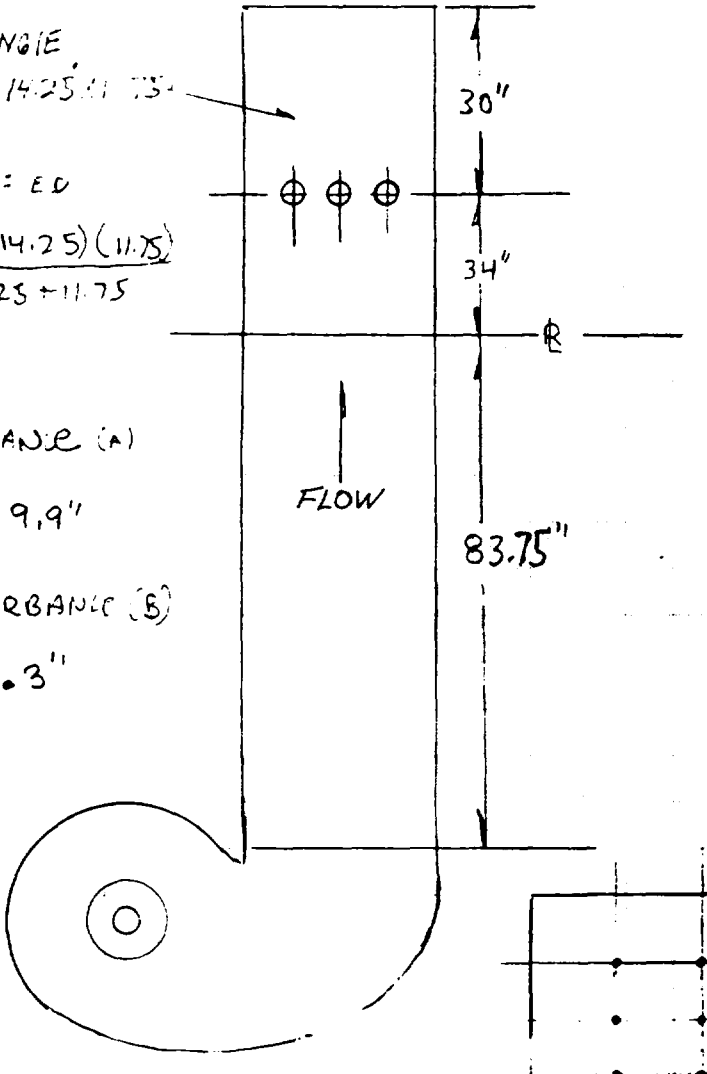
Source Operation During Testing

See Test Burn Plan

RECON SYSTEMS, INC.
Route 202N, Box 460
THREE BRIDGES, NJ 08887
(201) 782-5900

JOB [illegible]
SHEET NO OF 41
CALCULATED BY [illegible] DATE [illegible]
CHECKED BY DATE
SCALE [illegible]

INCINERATOR OUTLET
SAMPLING POINT S5



EQUIVALENT DIA: ED

$$\frac{2LW}{L+W} = \frac{(2)(14.25)(11.75)}{14.25+11.75}$$

ED = 12.9"

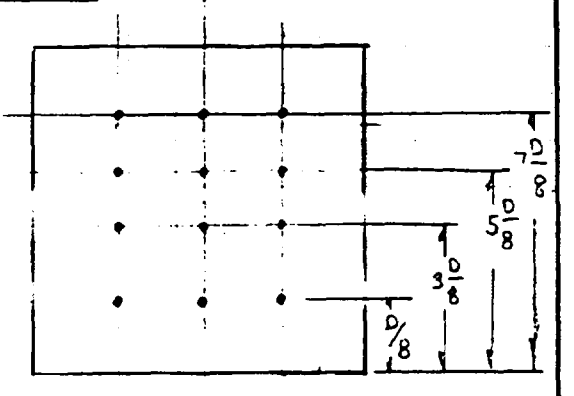
UPSTREAM DISTURBANCE (A)

$$127.75/12.9 = 9.9"$$

DOWNSTREAM DISTURBANCE (B)

$$30"/12.9" = 2.3"$$

12 SAMPLING POINTS



PROBE MARKING

D = 11.75"

D/8 = 1.47"
3 D/8 = 4.4"
5 D/8 = 7.3"
7 D/8 = 10.3"

STACK TEST PROTOCOL SUBMITTAL

TO:

RE: PRATT & WHITNEY
E. Hartford, CT
Brun-Zol Incinerator

ATTN:

Contact: Charlie Johnson
Phone No.203-565-4321
RECON Project No. 1023C

This protocol is submitted for stack testing planned by RECON SYSTEMS, INC. for the above referenced client.

Source to be tested: Scrubber Inlet
ID No.

Applicable permit and/or
certificate numbers

Approximate Date of Testing: Summer 1985

For Isokinetic Testing, if any

Stack diameter or dimensions 14.25"
Nearest upstream disturbances 48"
Nearest downstream disturbances 28"
EPA Distance "A" 3.3" EPA Distance "B" 1.93"
Proposed number of sampling points 12
Proposed time per sampling point 5 minutes
Proposed total stack gas sample size 30 dry standard ft^3

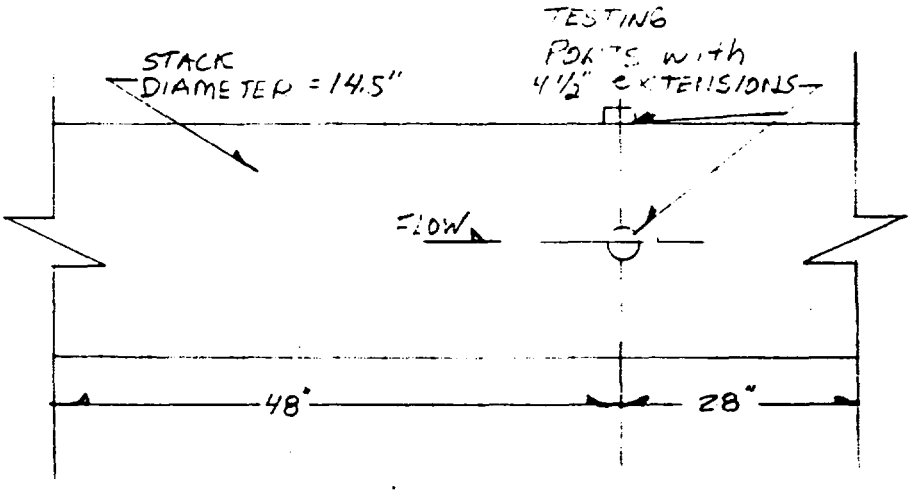
Source Operation During Testing

See Test Burn Plan

RECON SYSTEMS, INC.
Route 202N, Box 460
THREE BRIDGES, NJ 08887
(201) 782-5900

JOB [illegible] INLET
SHEET NO [illegible] OF 43
CALCULATED BY FWS DATE 1/14/93
CHECKED BY [illegible] DATE [illegible]
SCALE SCRUBBER INLET

SCRUBBER INLET
SAMPLING POINT (S4)



UPSTREAM DISTURBANCE (A)

$$\frac{48"}{14.5"} = 3.3"$$

PROPOSED NO. SAMPLING POINTS = 24
12 points/port

DOWNSTREAM DISTURBANCE (B)

$$\frac{28"}{14.5} = 1.93"$$

	A	A × D = B	B + 4.5
1	[illegible]021	0.305	4.8
2	0.067	0.97	5.5
3	0.118	1.71	6.2
[illegible]	0.177	2.57	7.1
[illegible]	0.25	3.62	8.1
[illegible]	0.356	5.16	9.7
[illegible]	0.644	9.34	13.8
3	0.750	10.87	15.4
[illegible]	0.823	11.93	16.4
[illegible]	0.882	12.79	17.3
[illegible]	0.933	13.53	18.0
[illegible]	0.979	14.2	18.70

Source Operation Record Keeping

Responsibility of __X__ Owner _____ RECON

___ Production rate
_X_ Fuel usage
_X_ Incineration feed rate
_X_ Steam production
_X_ Operating parameters (temperatures, pressures, flows, etc.)
___ Other

The following are attached if available:

1. Test procedures proposed
2. Stack diagram
3. Permits or applications
4. Process description

This protocol submitted by

Frank W. Swetits
Manager Field Testing
February 21, 1985

FWS/ab

enclosure

STACK TESTING PROCEDURES CHECKLIST

Particulate Emissions:
- X US EPA 5
- ___ US EPA 17
- ___ N.J. Method 1
- X Plus impinger catch
- ___ Plus aqueous and organic impinger catch
- ___ Other: _____

Probe Material GLASS

Velocity:
- ___ Standard pitot tube and manometer
- X "S" pitot tube and manometer
- ___ Other: _____
- ___ Cyclonic Flow Check Planned? ___ yes ___ no

Temperature:
- X thermocouple
- ___ temperature gage
- ___ process indicator

Gas Composition:
- X onsite fyrite
- ___ grab sample and lab orsat
- ___ integrated sample and lab orsat
- X integrated and traversed sample and lab orsat
- ___ Other: _____

Particle Sizing:
- ___ instack cascade impactor
- ___ heated out of stack cascade impactor
- ___ plus impinger catch
- ___ plus aqueous and organic impinger catch

Sulfur Oxide Emissions:
- ___ US EPA 6
- ___ US EPA 8
- ___ Sulfite Corrections Made
- ___ Controlled condensation for SO_3
- ___ US EPA 6__ or 8__ combined with US EPA 5__ or 17___ or particle sizing ___

Nitrogen Oxide Emissions:
- X US EPA 7
- ___ Chemiluminescent monitor

Hydrogen Chloride (HCl) Emissions:
- ___ API 767-54
- X Cl^- analysis of particulate test wet catch
- ___ Other _____

Hydrocarbon Emissions:
___ N.J. Method 3
___ RECON Method 2
_X_ Integrated gas bag direct and lab GC
___ Grab sample gas bag direct and lab GC
___ Onsite GC direct

Metal Emissions: _X_ AA determination on filter and probe wash
_X_ AA determination on impinger catch

Carbon Monoxide Emissions: _X_ Thermal Conductivity analysis of "Gas Composition" sample(s)

Opacity: ___ N.J. Method 2
___ U.S. EPA Method 9

Calibrations: Dry gas meters and orifice, pitot tubes, thermocouples and nozzle calibrations will be suppplied with the test report unless test is unofficial.

Comments:

POHC's by Modified Method 5

APPENDIX B

Method Number: S004

Method Name: Tap

Basic Method: Liquid grab sample

Matrix: Moving streams

Sampling Method Parameters:

Hardware: Valves for tap, sample line (washed Teflon), collection bottles.

Use: Insert sample line into collection vessel. Rinse sample line and bottle thoroughly with liquid waste prior to isolating sample. Collect a minimum of 2 L of sample with a sampling time which exceeds five minutes.

References: Lentzen, D.E., D.E. Wagoner, E.D. Estes and W.F. Gutknecht, "EPA/IERL-RTP Procedures Manual: Level 1 Environmental Assessment (Second Edition)," EPA-600/7-78-201, (October 1978). NTIS No. PB 293795/AS

American Society for Testing and Materials, Philadelphia, Pennsylvania, "Annual Book of ASTM Standards," Method D-270 (1975).

Method Number: S009

Method Name: SASS

Basic Method: Comprehensive sampling train (filter-cyclone-sorbent-impinger)

Matrix: Stack gas (particulate plus vapor phase material)

Sampling Method Parameters:

Hardware: Acurex or equivalent sampling train

Filter - glass fiber filter

Sorbent - XAD-2 Resin (or as necessary for collection of target species - (Table 7).

Impinger reagent - as necessary for collection of target species (Table 7).

Cyclone cutoffs - 10 μm, 3 μm, 1 μm.

Use: Traverse stack to determine point of average velocity and sample isokinetically as specified in EPA methods 1-5.

Collect 30 m^3 sample at approximately 4 ft^3/min with a sampling rate near isokinetic conditions.

Recovery Check:

Spike filter/sorbent and/or impingers before or immediately after sampling with a known quantity of a deuterated or fluorinated analog of target compound(s).

Reference: Lentzen, D.E., D.E. Wagoner, E.D. Estes and W.F. Gutknecht, "EPA/IERL-RTP Procedures Manual: Level 1 Environmental Assessment," EPA-600/7-78-201 (October 1978). NTIS No. PB 293795/AS.

SORBENTS AND SPECIAL REAGENTS FOR SPECIFIC POHCs

Compound type	Sorbent/Reagent
General purpose - organics	XAD-2 resin
General purpose - organics	Tenax GC
General purpose - chlorinated organics	Florisil
General purpose - nonpolar	Ambersorb XE-340
General purpose, better for polar organics than XAD-2 resin	XAD-8 resin
General purpose - polar organics	Ambersorb XE-347
Acidic compounds	Dilute caustic (such as 1% NaOH)
Basic compounds	Dilute acid (such as 1% HCl)
Volatile metals	Oxidizing reagents (such as ammonium persulfate)
Aldehydes	Dinitrophenylhydrazine in 2 N HCl (or 2,3,4,5,6-Pentachlorobenzylhydrazine)

Method Number: A252

Method Name: Total cyanides

Basic Method: Titration
Colorimetry

Matrices: Aqueous Liquids
Organic Liquids
Sludges
Solids

Species from Appendix VIII to which method may be applied:

Barium cyanide
Calcium cyanide
Copper cyanide
Cyanides, N.O.S.
Ethyl cyanide
Nickel cyanide
Potassium cyanide
Potassium silver cyanide
Silver cyanide
Sodium cyanide
Zinc cyanide

Apparatus: Spectrophotometer
Microburet
Cyanide distillation apparatus

Analysis Method Parameters:

- removal of oxidizing agents (indicated by KI-starch test paper) with ascorbic acid;
- removal of sulfides (lead acetate test paper) with cadmium carbonate;
- removal of fatty acids by single extraction with hexane at pH 6 to 7. Following extraction, raise pH of solution above 12.

HCN Evolution:

Add concentrated H_2SO_4 and magnesium chloride solution to flask and reflux for one hour.

HCN Collection:

Adjust vacuum to draw ca. 1 bubble/sec through flask, collect gas continuously prior to adding acid to 15 min. after removal of heat.

Analytical Method:

Titration:

Titrate solution with standard silver nitrate in the presence of benzalrhodamine indicator to first color change from yellow to brownish pink.

Colorimetry:

To solution, add Chloramine T and mix solution. After 1-2 min. add pryidine-barbituric acid solution and mix, read adsorbance at 578 nm between 8 and 15 min after start of color development;

Or after 1-2 min., add pyridine-pyrazolone solution and mix. Measure absorbance at 620 nm after 40 min.

Detection Limits and Typical Working Range:

Titration:	0.3 mg/L; > 1 mg/L
Colorimetry:	0.01 mg/L; 0.02-1 mg/L

References: U.S. Environmental Protection Agency/Office of Solid Waste, Washington, D.C., "Test Methods for Evaluating Solid Waste-Physical/Chemical Methods," SW-846 (1980).

Kopp, J.F. and G.D. McKee, "Methods for Chemical Analysis of Water and Wastes," EPA-600/4-79-020 (March 1979). NTIS No. PB 297686/AS.

APPENDIX C

```
 1 INCINERATOR MODEL PERFORMANCE EVALUATION
 2            PRATT & WHITNEY
 3          PROJECT #1023F-JAN 85
 4 --------AS TESTED MAY 84----------
 5 ----------WAX/SLV  10600 BTU/HR-------------
 6
 7 WASTE FEED, NZ-1, SLV, MMBTU/HR                    0.00
 8 WASTE FEED, NZ-2, AQW, (DEMAND), MMBTU/HR          0.00
 9 WASTE FEED, NZ-3, WX/SLV, MMBTU/HR                 4.57
10 TOTAL WASTE FEED, MMBTU/HR                         4.57
11 WASTE COMBUSTION, EXCESS AIR, %                  -36.88
12 PRI BRNR FIRING RATE, MMBTU/HR                     0.00
13 PRI BRNR EXCESS AIR, %                             0.00
14 TOTAL PRI CHMBR HEAT INPUT, MMBTU/HR               4.57
15 PRI CHMBR HEAT RELEASE, MMBTU/HR                   2.88
16 PRI CHMBR, AQW HEAT DEMAND, MMBTU/HR               0.00
17 PRI CHMBR NET HEAT RELEASE, MMBTU/HR               2.88
18 PRI CHMBR EXCESS AIR, TOTAL, %                   -36.88
19 PRI CHMBR RESIDENCE TIME, SEC                      1.86
20 PRI CHMBR EXIT TEMP, F                          3021.32
21 PRIMARY COOLING AIR, SCFM                        818.00
22 POST PRI CHMBR EXCESS AIR, TOTAL BASIS, %         21.55
23 POST PRI CHMBR HEAT RELEASE, MMBTU/HR              1.68
24 POST PRI CHMBR EXIT TEMP, F                     2458.19
25 SECONDARY BURNER HEAT INPUT, MMBTU/HR              2.50
26 SEC BRNR EXCESS AIR, %                           194.00
27 SEC BRNR SECTION EXIT TEMP, F                   2231.13
28 SEC CHMBR RESIDENCE TIME, SEC                      0.46
29 ACCUMULATED RESIDENCE TIME, SEC                    2.32
30 SEC CHMBR EXIT TEMP, F                          2043.26
31 SECONDARY COOLING AIR, SCFM                      764.00
32 TERTIARY CHMBR EXCESS AIR, TOTAL, %              173.29
33 TERTIARY CHMBR ENTERING TEMP, F                 1660.79
34 TERT CHMBR EXIT TEMP, F                         1555.94
35 TERT CHMBR RESIDENCE TIME, SEC                     0.29
36 ------INCINERATOR FLUE GAS----------
37 TOTAL VOL, SCFM                                 3450.05
38 TOTAL VOL, ACFM                                13122.84
39 FLUE GAS TEMP, F                                1555.94
40           N2, %                                   73.80
41           O2, %                                   14.29
42          CO2, %                                    4.63
43          H2O, %                                    7.27
44 ACCUMULATED RESIDENCE TIME, SEC                    2.61
45 TOTAL EXCESS AIR, %                              173.29
46
47 EXCESS H2, #/HR          (MUST BE POSITIVE)       21.65
```

```
1            INCINERATOR MODEL INPUT DATA
2                 PRATT & WHITNEY
3               PROJECT #1023F---JAN 85
4 ----------------RUN  #3---------------
5 -------WAX/SLV  12600 BTU/# INCREASED HEAT VALUE--------
6 INCINERATOR DIA, FT                              5.33 F
7 INCINERATOR X-AREA, SQ FT                       22.34 CF
8 PRI CHMBR HT, FT                                 8.50 F
9 WASTE NOZZLE ELEV, FT                            3.50 V***
10 PRI CHMBR EFF VOL, CF                         111.68 CV
11 PRI CHMBR RADIATN AREA, SQ FT                 142.41 CF
12 CMBST AIR, NZ-1, SLV, SCFM (135 MAX)            0.00 V***
13 CMBST AIR, NZ-2, AQW, SCFM (135 MAX)            0.00 V***
14 CMBST AIR, NZ-3, WX/SLV, SCFM (230 MAX)      1130.00 V***
15 TOTAL WASTE CMBST AIR AVAILABLE, SCFM (MAX)  1130.00 CV
16 TOTAL AUX FUEL CMBST AIR AVAILABLE, SCFM     1176.00 CV
17 PRI COOLING AIR, SCFM                         400.00 V***
18 -----PRI CHMBR AUX FUEL-----------------------------  --
19 PRI BURNERS, 2@1.5 MMBTU/HR (3 MAX)             0.00 V***
20 PRI BRNR CMBST AIR, SCFM (55% MAX)              0.00 V***
21 PRI BRNR CMBST AIR REQD, SCFM                   0.00 CV
22 PRI BRNR EXCESS AIR, SCFM                       0.00 CV
23 PRI BRNR EXCESS AIR, %                          0.00 CV
24 -----SECONDARY CHAMBER-----------------------------
25 SEC CHMBR HT, FT                                4.50 F
26 SEC CHMBR VOL, CF                             100.52 CF
27 SEC BURNER, MMBTU/HR                            2.50 V***
28 SEC BRNR CMBST AIR, SCFM (45% MIN)            480.00 V***
29 SEC COOLING AIR, SCFM                         400.00 V***
30 SEC CHMBR RADIATN AREA, SQ FT                  75.39 CF
31 -----TERTIARY CHAMBER------------------------------
32 TERT CHMBR HT, FT                               3.00 F
33 TERT CHMBR VOL, CF                             67.01 CF
34 TERT CHMBR RADIATN AREA, SQ FT                 72.60 CF
35 -----INCINERATOR AIR-------------------------------
36 TOTAL COMBUSTION AIR, SCFM                    1610.00 CV
37 TOTAL COOLING AIR, SCFM                        800.00 CV
38 TOTAL INCINERATOR AIR, SCFM                   2410.00 CV
39 -----WASTE FEEDS-----------------------------------  --
40 WASTE FEED RATE, NZ-1, SLV, #/HR                0.00 V***
41 SLV HEAT CONTENT, BTU/#                      2865.00 V
42 WASTE FEED RATE, NZ-1, MMBTU/HR-INPUT           0.00 CV
43 AQW WASTE FEED RATE, NZ-2, AQW, #/HR            0.00 V***
44 AQW HEAT CONTENT, BTU/# (DEMAND)             1840.00 F
45 AQW WASTE, NZ-2, MMBTU/HR (DEMAND)              0.00 CV
46 WASTE FEED RATE, NZ-3, WX/SLV, #/HR           430.00 V***
47 WX/SLV HEAT CONTENT, BTU/#                  12600.00 F
48 WASTE FEED RATE, NZ-3, MMBTU/#-INPUT            5.42 CV
49 TOTAL WASTE FEED, MMBTU/HR-INPUT                5.42 CV
```

```
 1 INCINERATOR MODEL PERFORMANCE EVALUATION
 2            PRATT & WHITNEY
 3          PROJECT #1023F-JAN 85
 4 ------------------RUN  #3----------
 5 -----------WAX/SLV  12600 BTU/HR-------------
 6 -CORRECTED EXCESS AIR--INCREASED HEAT CONTENT-----
 7 WASTE FEED, NZ-1, SLV, MMBTU/HR                    0.00
 8 WASTE FEED, NZ-2, AQW, (DEMAND), MMBTU/HR          0.00
 9 WASTE FEED, NZ-3, WX/SLV, MMBTU/HR                 5.42
10 TOTAL WASTE FEED, MMBTU/HR                         5.42
11 WASTE COMBUSTION, EXCESS AIR, %                   20.21
12 PRI BRNR FIRING RATE, MMBTU/HR                     0.00
13 PRI BRNR EXCESS AIR, %                             0.00
14 TOTAL PRI CHMBR HEAT INPUT, MMBTU/HR               5.42
15 PRI CHMBR HEAT RELEASE, MMBTU/HR                   5.42
16 PRI CHMBR, AQW HEAT DEMAND, MMBTU/HR               0.00
17 PRI CHMBR NET HEAT RELEASE, MMBTU/HR               5.42
18 PRI CHMBR EXCESS AIR, TOTAL, %                    20.21
19 PRI CHMBR RESIDENCE TIME, SEC                      0.76
20 PRI CHMBR EXIT TEMP, F                          3376.05
21 PRIMARY COOLING AIR, SCFM                        400.00
22 POST PRI CHMBR EXCESS AIR, TOTAL BASIS, %         62.76
23 POST PRI CHMBR HEAT RELEASE, MMBTU/HR              0.00
24 POST PRI CHMBR EXIT TEMP, F                     2492.66
25 SECONDARY BURNER HEAT INPUT, MMBTU/HR              2.50
26 SEC BRNR EXCESS AIR, %                            20.00
27 SEC BRNR SECTION EXIT TEMP, F                   2949.11
28 SEC CHMBR RESIDENCE TIME, SEC                      0.43
29 ACCUMULATED RESIDENCE TIME, SEC                    1.20
30 SEC CHMBR EXIT TEMP, F                          2653.91
31 SECONDARY COOLING AIR, SCFM                       400.00
32 TERTIARY CHMBR EXCESS AIR, TOTAL, %                79.85
33 TERTIARY CHMBR ENTERING TEMP, F                 2324.77
34 TERT CHMBR EXIT TEMP, F                         2134.39
35 TERT CHMBR RESIDENCE TIME, SEC                     0.29
36 ------INCINERATOR FLUE GAS----------
37 TOTAL VOL, SCFM                                 2659.59
38 TOTAL VOL, ACFM                                13018.91
39 FLUE GAS TEMP, F                                2134.39
40           N2, %                                   71.03
41           O2, %                                   12.48
42          CO2, %                                    6.84
43          H2O, %                                    9.65
44 ACCUMULATED RESIDENCE TIME, SEC                    1.49
45 TOTAL EXCESS AIR, %                               79.85
46
47 EXCESS H2, #/HR          (MUST BE POSITIVE)       21.66
```

```
 1            INCINERATOR MODEL INPUT Data
 2                 PRATT & WHITNEY
 3               PROJECT #1023F---JAN 87
 4 ---------------RUN  #6-----------------------
 5 ---------WAX/SLV 12600 BTU/# PLUS AQW---------
 6 INCINERATOR DIA, FT                                  5.33 F
 7 INCINERATOR X-AREA, SQ FT                           22.34 CF
 8 PRI CHMBR HT, FT                                     8.50 F
 9 WASTE NOZZLE ELEV, FT                                3.50 V***
10 PRI CHMBR EFF VOL, CF                              111.68 CV
11 PRI CHMBR RADIATN AREA, SQ FT                      142.41 CF
12 CMBST AIR, NZ-1, SLV, SCFM (135 MAX)                 0.00 V***
13 CMBST AIR, NZ-2, AQW, SCFM (135 MAX)                 0.00 V***
14 CMBST AIR, NZ-3, WX/SLV, SCFM (230 MAX)           1330.00 V***
15 TOTAL WASTE CMBST AIR AVAILABLE, SCFM (MAX)       1330.00 CV
16 TOTAL AUX FUEL CMBST AIR AVAILABLE, SCFM          1176.00 CV
17 PRI COOLING AIR, SCFM                              400.00 V***
18 -----PRI CHMBR AUX FUEL-------------------------------------
19 PRI BURNERS, 2@1.5 MMBTU/HR (3 MAX)                  0.00 V***
20 PRI BRNR CMBST AIR, SCFM (55% MAX)                   0.00 V***
21 PRI BRNR CMBST AIR REQD, SCFM                        0.00 CV
22 PRI BRNR EXCESS AIR, SCFM                            0.00 CV
23 PRI BRNR EXCESS AIR, %                               0.00 CV
24 -----SECONDARY CHAMBER--------------------------------------
25 SEC CHMBR HT, FT                                     4.50 F
26 SEC CHMBR VOL, CF                                  100.52 CF
27 SEC BURNER, MMBTU/HR                                 2.50 V***
28 SEC BRNR CMBST AIR, SCFM (45% MIN)                 480.00 V***
29 SEC COOLING AIR, SCFM                              400.00 V***
30 SEC CHMBR RADIATN AREA, SQ FT                       75.39 CF
31 -----TERTIARY CHAMBER---------------------------------------
32 TERT CHMBR HT, FT                                    3.00 F
33 TERT CHMBR VOL, CF                                  67.01 CF
34 TERT CHMBR RADIATN AREA, SQ FT                      72.60 CF
35 -----INCINERATOR AIR----------------------------------------
36 TOTAL COMBUSTION AIR, SCFM                         1810.00 CV
37 TOTAL COOLING AIR, SCFM                             800.00 CV
38 TOTAL INCINERATOR AIR, SCFM                        2610.00 CV
39 -----WASTE FEEDS--------------------------------------------
40 WASTE FEED RATE, NZ-1, SLV, #/HR                     0.00 V***
41 SLV HEAT CONTENT, BTU/#                            2865.00 V
42 WASTE FEED RATE, NZ-1, MMBTU/HR-INPUT                0.00 CV
43 AQW WASTE FEED RATE, NZ-2, AQW, #/HR                350.00 V***
44 AQW HEAT CONTENT, BTU/# (DEMAND)                   1840.00 F
45 AQW WASTE, NZ-2, MMBTU/HR (DEMAND)                   0.64 CV
46 WASTE FEED RATE, NZ-3, WX/SLV, #/HR                500.00 V***
47 WX/SLV HEAT CONTENT, BTU/#                       12600.00 F
48 WASTE FEED RATE, NZ-3, MMBTU/#-INPUT                 6.30 CV
49 TOTAL WASTE FEED, MMBTU/HR-INPUT                     6.30 CV
```

```
 1  INCINERATION MODEL PERFORMANCE EVALUATION
 2              PRATT & WHITNEY
 3            PROJECT #10023F-JAN 85
 4  ----------RUN  #6----------------
 5  ---------WAX/SLV  12600 BTU/# PLUS AQW----------------
 6  ------ CORRECTED EXCESS AIR--------
 7  WASTE FEED, NZ-1, SLV, MMBTU/HR                    0.00
 8  WASTE FEED, NZ-2, AQW, (DEMAND), MMBTU/HR          0.64
 9  WASTE FEED, NZ-3, WX/SLV, MMBTU/HR                 6.30
10  TOTAL WASTE FEED, MMBTU/HR                         6.30
11  WASTE COMBUSTION, EXCESS AIR, %                   21.68
12  PRI BRNR FIRING RATE, MMBTU/HR                     0.00
13  PRI BRNR EXCESS AIR, %                             0.00
14  TOTAL PRI CHMBR HEAT INPUT, MMBTU/HR               6.30
15  PRI CHMBR HEAT RELEASE, MMBTU/HR                   6.30
16  PRI CHMBR, AQW HEAT DEMAND, MMBTU/HR               0.64
17  PRI CHMBR NET HEAT RELEASE, MMBTU/HR               5.66
18  PRI CHMBR EXCESS AIR, TOTAL, %                    21.68
19  PRI CHMBR RESIDENCE TIME, SEC                      0.68
20  PRI CHMBR EXIT TEMP, F                          2930.33
21  PRIMARY COOLING AIR, SCFM                        400.00
22  POST PRI CHMBR EXCESS AIR, TOTAL BASIS, %         58.27
23  POST PRI CHMBR HEAT RELEASE, MMBTU/HR              0.00
24  POST PRI CHMBR EXIT TEMP, F                     2284.45
25  SECONDARY BURNER HEAT INPUT, MMBTU/HR              2.50
26  SEC BRNR EXCESS AIR, %                            20.00
27  SEC BRNR SECTION EXIT TEMP, F                   2728.23
28  SEC CHMBR RESIDENCE TIME, SEC                      0.40
29  ACCUMULATED RESIDENCE TIME, SEC                    1.07
30  SEC CHMBR EXIT TEMP, F                          2491.68
31  SECONDARY COOLING AIR, SCFM                      400.00
32  TERTIARY CHMBR EXCESS AIR, TOTAL, %               74.81
33  TERTIARY CHMBR ENTERING TEMP, F                 2230.39
34  TERT CHMBR EXIT TEMP, F                         2068.93
35  TERT CHMBR RESIDENCE TIME, SEC                     0.26
36  ------INCINERATOR FLUE GAS----------
37  TOTAL VOL, SCFM                                 3008.51
38  TOTAL VOL, ACFM                                14355.29
39  FLUE GAS TEMP, F                                2068.93
40             N2, %                                  68.03
41             O2, %                                  11.66
42            CO2, %                                   6.80
43            H2O, %                                  13.51
44  ACCUMULATED RESIDENCE TIME, SEC                    1.34
45  TOTAL EXCESS AIR, %                               74.81
46
47  EXCESS H2, #/HR          (MUST BE POSITIVE)        59.48
48
49
```

```
1            INCINERATOR MODEL INPUT DATA
2                 PRATT & WHITNEY
3               PROJECT #1023F---JAN 85
4 ----------RUN  #7A----------
5 --------AQW PLUS AUX FUEL PLUS ADDITIONAL HEAT INPUT----------
6 INCINERATOR DIA, FT                              5.33 F
7 INCINERATOR X-AREA, SQ FT                       22.34 CF
8 PRI CHMBR HT, FT                                 8.50 F
9 WASTE NOZZLE ELEV, FT                            3.50 V***
10 PRI CHMBR EFF VOL, CF                         111.68 CV
11 PRI CHMBR RADIATN AREA, SQ FT                 142.41 CF
12 CMBST AIR, NZ-1, SLV, SCFM (135 MAX)            0.00 V***
13 CMBST AIR, NZ-2, AQW, SCFM (135 MAX)            0.00 V***
14 CMBST AIR, NZ-3, WX/SLV, SCFM (230 MAX)         0.00 V***
15 TOTAL WASTE CMBST AIR AVAILABLE, SCFM (MAX)     0.00 CV
16 TOTAL AUX FUEL CMBST AIR AVAILABLE, SCFM     1176.00 CV
17 PRI COOLING AIR, SCFM                         400.00 V***
18 -----PRI CHMBR AUX FUEL----------                    --
19 PRI BURNERS, 2@1.5 MMBTU/HR (3 MAX)             6.00 V***
20 PRI BRNR CMBST AIR, SCFM (55% MAX)           1150.00 V***
21 PRI BRNR CMBST AIR REQD, SCFM                 960.00 CV
22 PRI BRNR EXCESS AIR, SCFM                     190.00 CV
23 PRI BRNR EXCESS AIR, %                         19.79 CV
24 -----SECONDARY CHAMBER----------
25 SEC CHMBR HT, FT                                4.50 F
26 SEC CHMBR VOL, CF                             100.52 CF
27 SEC BURNER, MMBTU/HR                            2.50 V***
28 SEC BRNR CMBST AIR, SCFM (45% MIN)            480.00 V***
29 SEC COOLING AIR, SCFM                         400.00 V***
30 SEC CHMBR RADIATN AREA, SQ FT                  75.39 CF
31 -----TERTIARY CHAMBER----------
32 TERT CHMBR HT, FT                               3.00 F
33 TERT CHMBR VOL, CF                             67.01 CF
34 TERT CHMBR RADIATN AREA, SQ FT                 72.60 CF
35 -----INCINERATOR AIR----------
36 TOTAL COMBUSTION AIR, SCFM                   1630.00 CV
37 TOTAL COOLING AIR, SCFM                       800.00 CV
38 TOTAL INCINERATOR AIR, SCFM                  2430.00 CV
39 -----WASTE FEEDS----------                          --
40 WASTE FEED RATE, NZ-1, SLV, #/HR                0.00 V***
41 SLV HEAT CONTENT, BTU/#                      2865.00 V
42 WASTE FEED RATE, NZ-1, MMBTU/HR-INPUT           0.00 CV
43 AQW*WASTE FEED RATE, NZ-2, AQW, #/HR          200.00 V***
44 AQW HEAT CONTENT, BTU/# (DEMAND)             1840.00 F
45 AQW*WASTE, NZ-2, MMBTU/HR (DEMAND)              0.37 CV
46 WASTE FEED RATE, NZ-3, WX/SLV, #/HR             0.00 V***
47 WX/SLV HEAT CONTENT, BTU/#                  10600.00 F
48 WASTE FEED RATE, NZ-3, MMBTU/#-INPUT            0.00 CV
49 TOTAL WASTE FEED, MMBTU/HR-INPUT                0.00 CV
```

```
 1 INCINERATOR MODEL PERFORMANCE EVALUATION
 2            PRATT & WHITNEY
 3          PROJECT #1023F-JAN 85
 4 ----------------RUN  #7A--------------------
 5 --------AQW PLUS AUX FUEL PLUS ADDITIONAL HEAT INPUT-----WAX/SL
 6
 7 WASTE FEED, NZ-1, SLV, MMBTU/HR                          0.00
 8 WASTE FEED, NZ-2, AQW, (DEMAND), MMBTU/HR                0.37
 9 WASTE FEED, NZ-3, WX/SLV, MMBTU/HR                       0.00
10 TOTAL WASTE FEED, MMBTU/HR                               0.00
11 WASTE COMBUSTION, EXCESS AIR, %                          0.00
12 PRI BRNR FIRING RATE, MMBTU/HR                           6.00
13 PRI BRNR EXCESS AIR, %                                  19.79
14 TOTAL PRI CHMBR HEAT INPUT, MMBTU/HR                     6.00
15 PRI CHMBR HEAT RELEASE, MMBTU/HR                         6.00
16 PRI CHMBR, AQW HEAT DEMAND, MMBTU/HR                     0.37
17 PRI CHMBR NET HEAT RELEASE, MMBTU/HR                     5.63
18 PRI CHMBR EXCESS AIR, TOTAL, %                          19.79
19 PRI CHMBR RESIDENCE TIME, SEC                            0.71
20 PRI CHMBR EXIT TEMP, F                                3253.18
21 PRIMARY COOLING AIR, SCFM                              400.00
22 POST PRI CHMBR EXCESS AIR, TOTAL BASIS, %               61.46
23 POST PRI CHMBR HEAT RELEASE, MMBTU/HR                    0.00
24 POST PRI CHMBR EXIT TEMP, F                           2464.83
25 SECONDARY BURNER HEAT INPUT, MMBTU/HR                    2.50
26 SEC BRNR EXCESS AIR, %                                  20.00
27 SEC BRNR SECTION EXIT TEMP, F                         2903.41
28 SEC CHMBR RESIDENCE TIME, SEC                            0.41
29 ACCUMULATED RESIDENCE TIME, SEC                          1.13
30 SEC CHMBR EXIT TEMP, F                                2628.66
31 SECONDARY COOLING AIR, SCFM                            400.00
32 TERTIARY CHMBR EXCESS AIR, TOTAL, %                     78.68
33 TERTIARY CHMBR ENTERING TEMP, F                       2321.81
34 TERT CHMBR EXIT TEMP, F                               2140.57
35 TERT CHMBR RESIDENCE TIME, SEC                           0.27
36 ------INCINERATOR FLUE GAS----------
37 TOTAL VOL, SCFM                                       2790.08
38 TOTAL VOL, ACFM                                      13690.17
39 FLUE GAS TEMP, F                                      2140.57
40            N2, %                                        68.28
41            O2, %                                        11.90
42           CO2, %                                         5.11
43           H2O, %                                        14.71
44 ACCUMULATED RESIDENCE TIME, SEC                          1.40
45 TOTAL EXCESS AIR, %                                     78.68
46
47 EXCESS H2, #/HR          (MUST BE POSITIVE)            109.89
48
49
```

```
 1            INCINERATOR MODEL INPUT DATA
 2                 PRATT & WHITNEY
 3               PROJECT #10,758  --JAN 85
 4 ----------------RUN  #11----------------------
 5 ---SLV 50/50 MIX PLUS NONCHLO SOLVENTS TOTAL 6990 BTU/#----
 6 INCINERATOR DIA, FT                              5.33 F
 7 INCINERATOR X-AREA, SQ FT                       22.34 CF
 8 PRI CHMBR HT, FT                                 8.50 F
 9 WASTE NOZZLE ELEV, FT                            3.50 V***
10 PRI CHMBR EFF VOL, CF                          111.68 CV
11 PRI CHMBR RADIATN AREA, SQ FT                  142.41 CF
12 CMBST AIR, NZ-1, SLV, SCFM (135 MAX)           300.00 V***
13 CMBST AIR, NZ-2, AQW, SCFM (135 MAX)             0.00 V***
14 CMBST AIR, NZ-3, WX/SLV, SCFM (230 MAX)        700.00 V***
15 TOTAL WASTE CMBST AIR AVAILABLE, SCFM (MAX)   1000.00 CV
16 TOTAL AUX FUEL CMBST AIR AVAILABLE, SCFM      1176.00 CV
17 PRI COOLING AIR, SCFM                          400.00 V***
18 -----PRI CHMBR AUX FUEL-------------------------------  --
19 PRI BURNERS, 2@1.5 MMBTU/HR (3 MAX)              0.00 V***
20 PRI BRNR CMBST AIR, SCFM (55% MAX)               0.00 V***
21 PRI BRNR CMBST AIR REQD, SCFM                    0.00 CV
22 PRI BRNR EXCESS AIR, SCFM                        0.00 CV
23 PRI BRNR EXCESS AIR, %                           0.00 CV
24 -----SECONDARY CHAMBER---------------------------------
25 SEC CHMBR HT, FT                                4.50 F
26 SEC CHMBR VOL, CF                             100.52 CF
27 SEC BURNER, MMBTU/HR                            2.50 V***
28 SEC BRNR CMBST AIR, SCFM (45% MIN)            480.00 V***
29 SEC COOLING AIR, SCFM                         400.00 V***
30 SEC CHMBR RADIATN AREA, SQ FT                  75.39 CF
31 -----TERTIARY CHAMBER----------------------------------
32 TERT CHMBR HT, FT                               3.00 F
33 TERT CHMBR VOL, CF                             67.01 CF
34 TERT CHMBR RADIATN AREA, SQ FT                 72.60 CF
35 -----INCINERATOR AIR-----------------------------------
36 TOTAL COMBUSTION AIR, SCFM                    1480.00 CV
37 TOTAL COOLING AIR, SCFM                        800.00 CV
38 TOTAL INCINERATOR AIR, SCFM                   2280.00 CV
39 -----WASTE FEEDS---------------------------------------  --
40 WASTE FEED RATE, NZ-1, SLV, #/HR               465.00 V***
41 SLV HEAT CONTENT, BTU/#                       2865.00 V
42 WASTE FEED RATE, NZ-1, MMBTU/HR-INPUT            1.33 CV
43 AQW'WASTE FEED RATE, NZ-2, AQW, #/HR             0.00 V***
44 AQW HEAT CONTENT, BTU/# (DEMAND)              1840.00 F
45 AQW'WASTE, NZ-2, MMBTU/HR (DEMAND)               0.00 CV
46 WASTE FEED RATE, NZ-3, WX/SLV, #/HR            235.00 V***
47 WX/SLV HEAT CONTENT, BTU/#                   15000.00 F
48 WASTE FEED RATE, NZ-3, MMBTU/#-INPUT             3.53 CV
49 TOTAL WASTE FEED, MMBTU/HR-INPUT                 4.86 CV
```

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INCINERATOR MODEL PERFORMANCE EVALUATION
            PRATT & WHITNEY
          PROJECT #1023F-JAN 85
-------------RUN  #11----------------
------SLV 50/50 MIX PLUS NONCHLO SOLVENTS-----
               TOTAL 6990 BTU/#
WASTE FEED, NZ-1, SLV, MMBTU/HR                    1.33
WASTE FEED, NZ-2, AQW, (DEMAND), MMBTU/HR          0.00
WASTE FEED, NZ-3, WX/SLV, MMBTU/HR                 3.53
TOTAL WASTE FEED, MMBTU/HR                         4.86
WASTE COMBUSTION, EXCESS AIR, %                   18.66
PRI BRNR FIRING RATE, MMBTU/HR                     0.00
PRI BRNR EXCESS AIR, %                             0.00
TOTAL PRI CHMBR HEAT INPUT, MMBTU/HR               4.86
PRI CHMBR HEAT RELEASE, MMBTU/HR                   4.86
PRI CHMBR, AQW HEAT DEMAND, MMBTU/HR               0.00
PRI CHMBR NET HEAT RELEASE, MMBTU/HR               4.86
PRI CHMBR EXCESS AIR, TOTAL, %                    18.66
PRI CHMBR RESIDENCE TIME, SEC                      0.88
PRI CHMBR EXIT TEMP, F                          3307.36
PRIMARY COOLING AIR, SCFM                        400.00
POST PRI CHMBR EXCESS AIR, TOTAL BASIS, %         66.13
POST PRI CHMBR HEAT RELEASE, MMBTU/HR              0.00
POST PRI CHMBR EXIT TEMP, F                     2374.21
SECONDARY BURNER HEAT INPUT, MMBTU/HR              2.50
SEC BRNR EXCESS AIR, %                            20.00
SEC BRNR SECTION EXIT TEMP, F                   2896.07
SEC CHMBR RESIDENCE TIME, SEC                      0.47
ACCUMULATED RESIDENCE TIME, SEC                    1.35
SEC CHMBR EXIT TEMP, F                          2586.22
SECONDARY COOLING AIR, SCFM                      400.00
TERTIARY CHMBR EXCESS AIR, TOTAL, %               83.47
TERTIARY CHMBR ENTERING TEMP, F                 2244.72
TERT CHMBR EXIT TEMP, F                         2050.25
TERT CHMBR RESIDENCE TIME, SEC                     0.31
------INCINERATOR FLUE GAS----------
TOTAL VOL, SCFM                                 2513.95
TOTAL VOL, ACFM                                11906.87
FLUE GAS TEMP, F                                2050.25
          N2, %                                   71.08
          O2, %                                   12.69
         CO2, %                                    6.66
         H2O, %                                    9.58
ACCUMULATED RESIDENCE TIME, SEC                    1.66
TOTAL EXCESS AIR, %                               83.47

EXCESS H2, #/HR         (MUST BE POSITIVE)        12.69
```

```
 1 ----INCINERATOR MODEL  DATA BASIS----------------------------
 2       F=FIXED INPUT
 3       CF=CACLULATED FIXED INPUT
 4       V=VARIABLE
 5      CV=CALCULATED VARIABLE
 6 REFRACTORY CONDUCTIVITY, BTU IN/HR SQ FT F          12.00
 7      "      THICKNESS, IN                           4.00
 8      "      CONDUCTIVITY, BTU/HR SQ FT F            3.00
 9 H2O LATENT HEAT OF VAPORIZATION, BTU/#            1000.00
10  "  SPECIFIC HEAT (STEAM), BTU/# F                  0.40
11 AQW BTU DEMAND, BTU/# (@ 2100 F)                  1840.00
12  "  VAPOR VOL, SCFM/MMBTU/HR                        0.36
13 NATURAL GAS COMBUSTION FACTORS
14    COMBUSTION AIR REQD, SCFM/MMBTU/HR             160.00
15    PRODUCTS OF COMBUSTION
16      H2O, SCFM/MMBTU/HR                            33.70
17      CO2, SCFM/MMBTU/HR                            16.78
18      N2,  SCFM/MMBTU/HR                           126.40
19 COMBUSTION AIR COMPOSITION
20       O2, 20%
21       N2, 78%
22       H2O, 2%
23 WASTE COMBUSTION FACTORS, WX/SLV
24      COMBUSTION AIR REQD, SCFM/MMBTU/HR           173.50
25 PRODUCTS OF COMBUSTION
26      H2O, SCFM/MMBTU/HR                            22.20
27      CO2, SCFM/MMBTU/HR                            25.83
28      N2,  SCFM/MMBTU/HR                           137.06
29 WASTE COMPOSITION
30      C   51.4%
31      H2   7.4%
32      O2   1.3%
33      H2O  0.4%
34      CL2 34.6%
35 HEAT OF COMBUSTION, BTU/#
36      WAX                                        16000.00
37      PERCHLOROETHYLENE                           2140.00
38      1,1,1 TRICHLOROETHANE                       3585.00
39      WAX/SLV AS TESTED                          10600.00
40      WAX/SLV 75/25                              12600.00

41      SLV  50/50 PERC/TRIC                        2865.00
42 CHLORINATED WASTE COMBUSTION FACTORS 50/50 MIX
43    COMBUSTION AIR REQD, STOC, SCFM/MMBTU/HR     105.80
44    PRODUCTS OF COMBUSTION
45      H2O, SCFM/MMBTU/HR                         -14.69
46      CO2, SCFM/MMBTU/HR                          30.00
47      N2,  SCFM/MMBTU/HR                          82.55
48      CL2, SCFM/MMBTU/HR (POTENTIAL)              52.70
49      HCL, SCFM/MMBTU/HR                          51.30
50    STOC REQUIREMENTS  1.0 #H2/35.5#CL2
51     "          "        10.34 #H2/MMBTU NAT GAS
52     "          "         0.11 #O2/# H2O
```

RECON SYSTEMS, INC.
Route 202N, Box 460
THREE BRIDGES, NJ 08887
(201) 782-5900

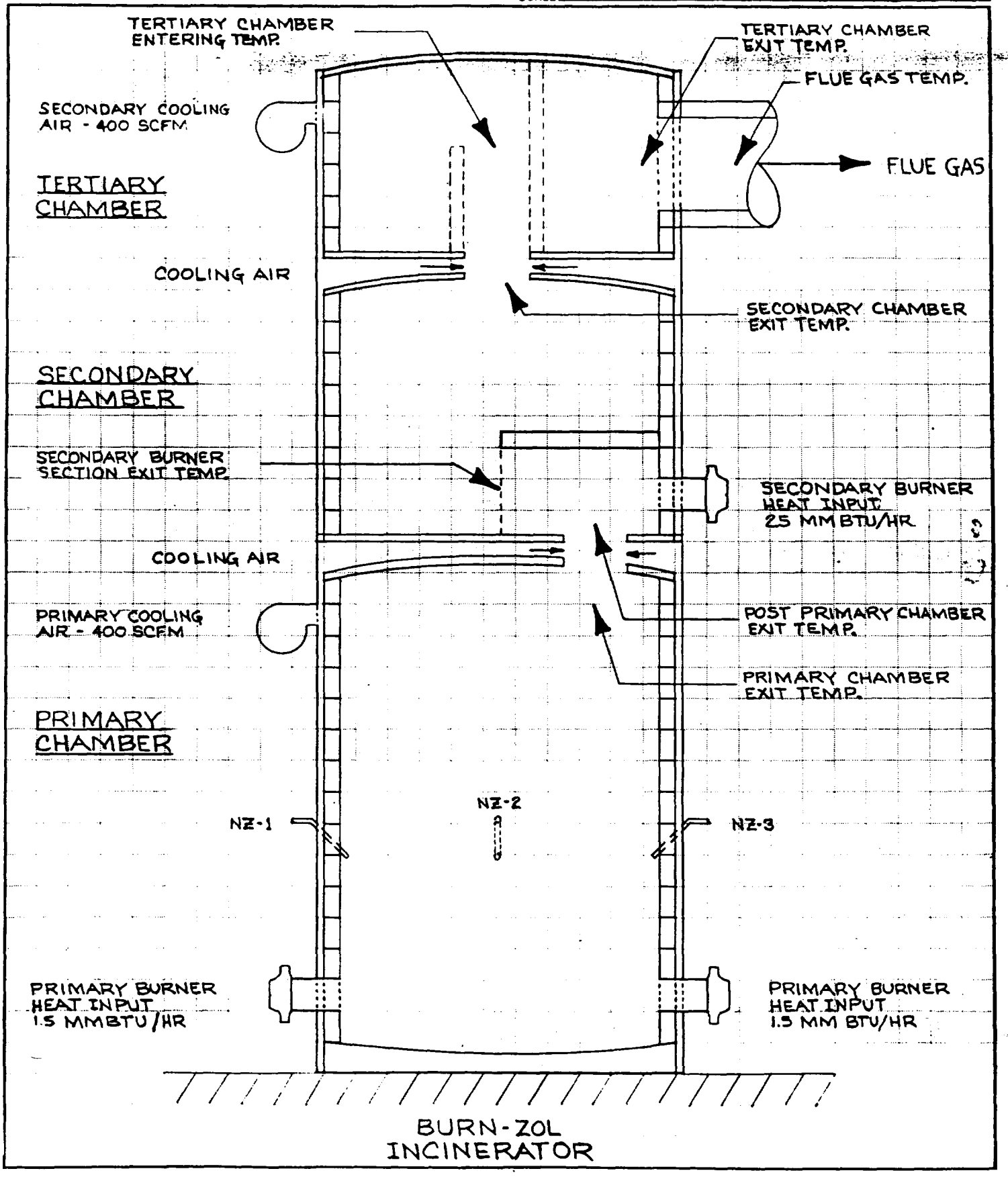
JOB PRATT & WHITNEY

SHEET NO ____ OF 65

CALCULATED BY AP DATE 2-19-85

CHECKED BY ____ DATE ____

SCALE RECON PROJECT No. 1023-F



BURN-ZOL INCINERATOR

Do not make entries in shaded areas — OMB #: 2050-0024 Expires: 12-31-86

ENVIRONMENTAL PROTECTION AGENCY

FACILITY BIENNIAL HAZARDOUS WASTE REPORT FOR 1983

This report is for the calendar year ending December 31, 1983
Read All Instructions Carefully Before Making Any Entries on Form

I. NON-REGULATED STATUS

See instructions before completing this section.

This facility did not treat, store, or dispose of regulated quantities of hazardous waste at any time during 1983. . . . . ☐

Explain your non-regulated status in the space below.

Please print/type with elite type (12 characters per inch)

II. FACILITY EPA I.D. NUMBER

T A C

C T D 0 9 0 1 6 7 2 0 8 1 [1

1 2 13 14 15

This Facility's Non-Regulated Status is Expected to Apply:

☐ For 1983 Only ☐ Permanently

☐ Other (explain in comment section)

C303 ENTRY (OFFICIAL USE ONLY): ☐

III. NAME OF FACILITY

PRATT & WHITNEY AIRCRAFT

30 69

IV. FACILITY MAILING ADDRESS

4 0 0 MAIN STREET

15 16 45

Street or P.O. Box

EAST HARTFORD | C T | 0 6 1 0 8

15 16 41 42 47 51

City or Town State Zip Code

V. LOCATION OF FACILITY (if different than section IV above)

15 16 45

Street or Route number

15 16 41 42 47 51

City or Town State Zip Code

VI. FACILITY CONTACT

WICKWIRE J D

15 16 45

Name (last and first)

2 0 3 - 5 6 5 - 4 8 8 7

46 55

Phone No. (area code & no.)

VII. COST ESTIMATES FOR FACILITIES

$ 4 0 4 3 9 0 (16 19 22)

A. Cost Estimate for Facility Closure

$, , (25 28 31)

B. Cost Estimate for Post Closure Monitoring and Maintenance (disposal facilities only)

VIII. CERTIFICATION

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this and all attached documents, and that based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the submitted information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment.

R. J. Sullivan, Mgr. EH Oper. — 5/24/84

Print/Type Name — Title — Signature of Authorized Representative — Date Signed

EPA Form 8700-13B(5-80) (Revised 11-83)

Do not make entries in shaded areas

ENVIRONMENTAL PROTECTION AGENCY

Facility Biennial Hazardous Waste Report for 1983 (cont.)

This report is for the calendar year ending December 31, 1983.

Date rec'd: _____ Rec'd by: _____

IX. FACILITY'S EPA I.D. NO.

C T D 9 9 0 6 7 2 0 8 1 (T/A/C)

1 2 13 14 15

X. GENERATOR'S EPA I.D. NO.

C T D 9 9 0 6 7 2 0 8 1

16 26

XI. GENERATOR NAME (specify generator from whom all wastes on this page were received)

Pratt + Whitney Aircraft ON-SITE ☒

XII. GENERATOR ADDRESS

XIII. TOTAL WASTE IN STORAGE ON DECEMBER 31, 1983 (complete this section only once for your facility)

S01 AMOUNT OF WASTE 19403 UOM P

S02 AMOUNT OF WASTE 195948 UOM P

S03 AMOUNT OF WASTE 0 UOM P

S04 AMOUNT OF WASTE 0 UOM P

S05 AMOUNT OF WASTE 0 UOM P

XIV. WASTE IDENTIFICATION

Sequence #	Line #	A. Description of Waste	B. EPA Hazardous Waste No. (see instructions)	C. Handling Method	D. Amount of Waste	Unit of Measure
29 32	1	Waste Nitric Acid over 40%	D007 33 35 37 40 41 43 45 45	T04 49 51	126 52 60	P 61
	2	Waste Hydrochloric Acid	D002	T04	10571	P
	3	Waste Hydrochloric Acid 20%	D002	T04	18690	P
	4	Waste Nitric Acid 50%	D001	T04	863.00	P
	5	Waste Corrosive Liq nos Nickel Strike Sol	D002	T04	43798	P
	6	Waste Sulfuric Acid Spent 40%	D002	T04	1850	P
	7	Waste Hydrochloric Acid Sol Inhibited 100%	D002	T04	21453	P
	8	Waste Nitric Acid 15%	D002	T04	6280	P
	9	Waste Hydrochloric Acid Sol Inhibited	D002	T04	25095	P
	10	Waste Acid Sol nos Nitric-Hydrofluoric	D001	T04	74664	P
	11	Waste Sodium Hydroxide Sol	D002	T04	31989	P
	12	Waste Hydrochloric Acid Sol 65%	D002	T04	108433	P

XV. COMMENTS (enter information by section number—see instructions)

Section XIV. Explanation for Handling Codes - Col C

Lines 1 thru 12 - Chemical Treatment

Tear out here

ENVIRONMENTAL PROTECTION AGENCY

Facility Biennial Hazardous Waste Report for 1983 (cont.)

This report is for the calendar year ending December 31, 1983.

IX. FACILITY'S EPA I.D. NO. T/A C

[redacted]CTD990672081[redacted]

X. GENERATOR'S EPA I.D. NO.

[redacted]CTD990672081

XI. GENERATOR NAME (specify generator from whom all wastes on this page were received)

Pratt & Whitney Aircraft ON-SITE X

XII. GENERATOR ADDRESS

XIII. TOTAL WASTE IN STORAGE ON DECEMBER 31, 1983 (complete this section only once for your facility)

S01 AMOUNT OF WASTE UOM S02 AMOUNT OF WASTE UOM S03 AMOUNT OF WASTE UOM

S04 AMOUNT OF WASTE UOM S05 AMOUNT OF WASTE UOM

XIV. WASTE IDENTIFICATION

Sequence #	A. Description of Waste	B. EPA Hazardous Waste No. (see instructions)	C. Handling Method	D. Amount of Waste	E. Unit of Measure
1	Waste Hydrofluoric + Sulfuric Acid Mixture	D002	T04	10.82	P
2	Waste Corrosive Liq. nos Chromate Corrosion Sol.	D007	T04	138.15	P
3	Waste Acid Sol. nos Chromium Plating Sol.	D007	T04	3.215	P
4	Waste Acid Sol. nos Electropolishing Sol.	D002	T04	1.775	P
5	Waste Nitric Acid 20%	D002	T04	50.79	P
6	Waste Acid Sol. nos Acid Salt Sol.	D002	T04	20.738	P
7	Waste Compound, Paint Removing Liquid	D002	T04	641.71	P
8	Hazardous Waste Liq. nos Anodizing Sol. - Ferric Sulfate	D002	T04	9.294	P
9	Waste Acid Sol. nos Anodizing Sol. Nitric	D002	T04	279.533	P
10	Waste Corrosive Liq. nos Chemical Milling Sol.	D002	T04	1551.031	P
11	Waste Corrosive Liq. nos Electroless Nickel Plating Sol.	D002	T04	745.38	P
12	Waste Acid Sol. nos Ferric Chloride Sol.	D002	T04	47.00	P

XV. COMMENTS (enter information by section number—see instructions)

Section XIV Explanation for Handling Codes - Col C

Lines 1 thru 12 - Chemical Treatment

Tear out here

ENVIRONMENTAL PROTECTION AGENCY

Facility Biennial Hazardous Waste Report for 1983 (cont.)

This report is for the calendar year ending December 31, 1983.

IX. FACILITY'S EPA I.D. NO. T/A C

CTD|9|9|0|6|7|2|0|8|1

XI. GENERATOR NAME (specify generator from whom all wastes on this page were received)

Pratt + Whitney Aircraft ON-SITE X

XII. GENERATOR ADDRESS

X. GENERATOR'S EPA I.D. NO.

CTD|9|9|0|6|7|2|0|8|1

XIII. TOTAL WASTE IN STORAGE ON DECEMBER 31, 1983 (complete this section only once for your facility)

S01 AMOUNT OF WASTE UOM S02 AMOUNT OF WASTE UOM S03 AMOUNT OF WASTE UOM

S04 AMOUNT OF WASTE UOM S05 AMOUNT OF WASTE UOM

XIV. WASTE IDENTIFICATION

Sequence #	Line #	A. Description of Waste	B. EPA Hazardous Waste No. (see instructions)	C. Handling Method	D. Amount of Waste	E. Unit of Measure
	1	Waste Acid Sol. nos Etd Inspection Acid Salt Sol	D002	T04	8607	P
	2	Waste Nitric Acid 80%	D002	T04	10200	P
	3	Waste Hydrochloric Acid 100%	D002	T04	954	P
	4	Waste Acid Sol nos Hydrofluoric + Nitric	D002	T04	32467.1	P
	5	Waste Acid Liquid nos Mixed Acids	D002	T04	27941.6	P
	6	Waste Chromic Acid Sol.	D007	T04	17435	P
	7	Waste Chromic Acid Sol. Anodizing Sol.	D007	T04	24113	P
	8	Waste Acid Sol. nos Chromium Plating Sol.	D007	T04	14538	P
	9	Waste Acid Sol. nos Chromic Acid + Sulfate Acid	D007	T04	1120	P
	10	Waste Sodium Dichromate Sol. Anodizing Sealing Sol.	D007	T04	13825	P
	11	Waste Chromic Acid Sol. Cadmium Bright Dip Sol.	D007	T04	13085	P
	12	Waste Chromic Acid Sol. Copper Strip Sol.	D007	T04	38384	P

XV. COMMENTS (enter information by section number—see Instructions)

Section XIV. Explanation for Handling Codes - Col. C

Lines 1 thru 12 - Chemical Treatment

Tear out here

ENVIRONMENTAL PROTECTION AGENCY

Facility Biennial Hazardous Waste Report for 1983 (cont.)

This report is for the calendar year ending December 31, 1983.

IX. FACILITY'S EPA I.D. NO.

T/A C

CTD990672081 [redacted]

1 2 13 14 15

X. GENERATOR'S EPA I.D. NO.

CTD990672081

16 28

XI. GENERATOR NAME (specify generator from whom all wastes on this page were received)

Pratt + Whitney Aircraft ON-SITE X

XII. GENERATOR ADDRESS

XIII. TOTAL WASTE IN STORAGE ON DECEMBER 31, 1983 (complete this section only once for your facility)

S01 AMOUNT OF WASTE UOM S02 AMOUNT OF WASTE UOM S03 AMOUNT OF WASTE UOM

S04 AMOUNT OF WASTE UOM S05 AMOUNT OF WASTE UOM

XIV. WASTE IDENTIFICATION

Sequence #	A. Description of Waste	B. EPA Hazardous Waste No. (see instructions)	C. Handling Method	D. Amount of Waste	E. Unit of Measure
1	Waste Acid Sol. nos Chromic-Phosphoric Acid	D007	T04	16204	P
2	Waste Acid Sol. nos Anodize Touch-up Sol.	D007	T04	13615	P
3	Hazardous Waste Liq nos Mixed Chrome	D007	T04	36865	P
4	Waste Alkaline Liq. nos Hvy Duty Alkal Cleaner	D002	T04	38281	P
5	Waste Alkaline Liq nos Med Duty Alkal Cleaner	D002	T04	220	P
6	Waste Alkaline Liq. nos Gen Purpose Alk cleaner	D002	T04	43110	P
7	Waste Alkaline Liq nos Soak Type Alkali Cleaner	D002	T04	190000	P
8	Waste Ammonium Hydroxide	D002	T04	286	P
9	Waste Alkaline Liq nos Stable Emulsion Cleaner	D002	T04	58020	P
10	Waste Alkaline Liq nos Alk. Drawing Compound Rem.	D002	T04	61620	P
11	Waste Sodium Hydroxide Sol	D002	T04	9300	P
12	Hazardous Waste Liq. nos Electrolytic Stripping Sol.	D002	T04	332	P

XV. COMMENTS (enter information by section number—see instructions)

Section XIV. Explanation for Handling Codes - Col. C

Lines 1 thru 12 - Chemical Treatment

Tear out here

ENVIRONMENTAL PROTECTION AGENCY

Facility Biennial Hazardous Waste Report for 1983 (cont.)

This report is for the calendar year ending December 31, 1983.

IX. FACILITY'S EPA I.D. NO.

T/A C

CTD990672081

1 2 13 14 15

X. GENERATOR'S EPA I.D. NO.

CTD990672081

16 28

XI. GENERATOR NAME (specify generator from whom all wastes on this page were received)

Pratt + Whitney Aircraft ON-SITE X

XII. GENERATOR ADDRESS

XIII. TOTAL WASTE IN STORAGE ON DECEMBER 31, 1983 (complete this section only once for your facility)

S01 AMOUNT OF WASTE UOM S02 AMOUNT OF WASTE UOM S03 AMOUNT OF WASTE UOM

S04 AMOUNT OF WASTE UOM S05 AMOUNT OF WASTE UOM

XIV. WASTE IDENTIFICATION

Sequence #	A. Description of Waste	B. EPA Hazardous Waste No. (see instructions)	C. Handling Method	D. Amount of Waste	E. Unit of Measure
1	Hazardous Waste Liq nos Nickel Strip Sol. (non-CN)	D002	T04	12513	P
2	Hazardous Waste Liq nos Copper Sulfate Strike Sol	D002	T04	2845	P
3	Waste Alkaline Sol. nos Nickel Strip Sol. (non-CN)	D002	T04	65830	P
4	Waste Alkaline Liq. nos Mixed Alkali	D002	T04	57077	P
5	Waste Alkaline Liq nos Phosphate Free Alkal Cleaner	D002	T04	14260	P
6	Waste Alkaline Liq nos Low Temperature Alk cleaner	D002	T04	10310	P
7	Waste Caustic Solid nos Containing Lead for Gold Plating	D002	T04	800	P
8	Waste Ferric Chloride Sol Anhydrous Ferric Chloride	D002	T04	40	P
9	Waste Caustic Soda Liquid	D002	T04	118	P
10	Waste Caustic Solid, nos Halide Salts	D002	T04	341	P
11	Waste Caustic Solid nos Halide Salts	D002	S01	22936	P
12	Waste Acid Sludge	D002	S01	1960	P

XV. COMMENTS (enter information by section number—see instructions)

Section XIV Explanation for Handling Codes - Col. C

Lines 1 thru 10 - Chemical Treatment

Tear out here

ENVIRONMENTAL PROTECTION AGENCY

Facility Biennial Hazardous Waste Report for 1983 (cont.)

This report is for the calendar year ending December 31, 1983.

IX. FACILITY'S EPA I.D. NO.

T/A C

[redacted] CTD990672018 1 [redacted]

1 2 13 14 15

X. GENERATOR'S EPA I.D. NO.

[redacted] CTD990672018 1

16 28

XI. GENERATOR NAME (specify generator from whom all wastes on this page were received)

Pratt + Whitney Aircraft ON-SITE X

XII. GENERATOR ADDRESS

XIII. TOTAL WASTE IN STORAGE ON DECEMBER 31, 1983 (complete this section only once for your facility)

S01 AMOUNT OF WASTE UOM S02 AMOUNT OF WASTE UOM S03 AMOUNT OF WASTE UOM

S04 AMOUNT OF WASTE UOM S05 AMOUNT OF WASTE UOM

XIV. WASTE IDENTIFICATION

Sequence #	A. Description of Waste	B. EPA Hazardous Waste No (see instructions)	C. Handling Method	D. Amount of Waste	E. Unit of Measure
1	Hazardous Waste Solid nos Acksl Sludge	D002	S01	57.1	P
2	Hazardous Waste Solid nos Chrome Sludge	D007	S01	1,096	P
3	Hazardous Waste Solid nos Chrome Sludge	D007	T04	5904	P
4	Waste Cyanide Solid, nos Cyanide Sludge	F008	S01	1540	P
5	Waste Denatured Alcohol	D001	S02	234	P
6	Waste Solvents nos Trichlorotrifluoroethane	F002	S02	2276	P
7	Waste Paint Lacquer Thinner	D001	S01	13302	P
8	Waste Fuel, Aviation Turbine Engine	D001	S02	4650	P
9	Waste Perchlorethylene	F001	T04	11536	P
10	Waste 1,1,1 Trichlorethane	F002	T04	7880	P
11	Hazardous Waste nos Was/Chlorinated Solvent	F002	T04	55800	P
12	Hazardous Waste Solid, nos Was/Chlorinated Solids	F002	S01	2450	P

Tear out here

XV. COMMENTS (enter information by section number—see instructions)

Section XIV. Explanation for Handling Codes - Col C

Line 3 - Chemical Treatment

Lines 9, 10 + 11 - Solvent Recovery

ENVIRONMENTAL PROTECTION AGENCY

Facility Biennial Hazardous Waste Report for 1983 (cont.)

This report is for the calendar year ending December 31, 1983.

IX. FACILITY'S EPA I.D. NO. T/A C

CTD990620881 [redacted]
1 2 13 14 15

XI. GENERATOR NAME (specify generator from whom all wastes on this page were received)

Pratt & Whitney Aircraft ON-SITE X

X. GENERATOR'S EPA I.D. NO.

CTD990620881
16 28

XII. GENERATOR ADDRESS

XIII. TOTAL WASTE IN STORAGE ON DECEMBER 31, 1983 (complete this section only once for your facility)

S01 AMOUNT OF WASTE UOM S02 AMOUNT OF WASTE UOM S03 AMOUNT OF WASTE UOM

S04 AMOUNT OF WASTE UOM S05 AMOUNT OF WASTE UOM

XIV. WASTE IDENTIFICATION

Sequence #	A. Description of Waste	B. EPA Hazardous Waste No. (see instructions)	C. Handling Method	D. Amount of Waste	E. Unit of Measure
1	Waste Alkaline Liq. NOS Chemical Milling Sol.	D002	T04	8500	P
2					
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					

XV. COMMENTS (enter information by section number—see instructions)

Section XIV Explanation for Handling Code - Col C

Line 1 - Chemical Treatment

Tear out here

ENVIRONMENTAL PROTECTION AGENCY

Facility Biennial Hazardous Waste Report for 1983 (cont.)

This report is for the calendar year ending December 31, 1983.

IX. FACILITY'S EPA I.D. NO. T/A C

[redacted] C T D 0 9 9 0 6 7 2 0 1 8 / [redacted]

1 2 13 14 15

X. GENERATOR'S EPA I.D. NO.

[redacted] C T D 1 0 0 1 4 4 9 5 1 / 1

16 28

XI. GENERATOR NAME (specify generator from whom all wastes on this page were received)

Pratt + Whitney Aircraft ON-SITE ☐

XII. GENERATOR ADDRESS

415 Washington Avenue
North Haven, CT

XIII. TOTAL WASTE IN STORAGE ON DECEMBER 31, 1983 (complete this section only once for your facility)

S01 AMOUNT OF WASTE UOM S02 AMOUNT OF WASTE UOM S03 AMOUNT OF WASTE UOM

S04 AMOUNT OF WASTE UOM S05 AMOUNT OF WASTE UOM

XIV. WASTE IDENTIFICATION

Sequence #	A. Description of Waste	B. EPA Hazardous Waste No. (see instructions)	C. Handling Method	D. Amount of Waste	E. Unit of Measure
1	Waste Alkaline Liq. nos Med Duty Alkali Cleaner	D002	T04	42290	P
2	Waste Alkaline Liq. nos Hvy Duty Alkali Cleaner	D002	S02	3111	P
3	Waste Alkaline Liq nos Hvy Duty Alkali Cleaner	D002	T04	11990	P
4	Waste Alkaline Sol. nos Nickel Strip Sol (non-CN)	D002	T04	141019	P
5	Waste Nitric Acid 20%	D002	T04	30361	P
6	Waste Acid Sol. nos Descaling Sol.	D002	T04	14163	P
7	Waste Hydrochloric Acid Mixture - Corrosive Strip Sol	D002	T04	58570	P
8	Waste Acid Sol. nos Acid Salt Sol	D002	T04	3568	P
9	Waste Hydrogen Fluoride Sol	U134	T04	2989	P
10	Waste Acid Liq. nos Sulfuric + Muriatic	D002	T04	144045	P
11	Waste Sulfuric Acid Spent	D002	T04	2368	P
12	Waste Acid Sol. nos Dry Acid Salt	D002	T04	2539	P

XV. COMMENTS (enter information by section number—see instructions)

Section XIV Explanation for Handling Code - Col C

Line 1 + 3 thru 12 - Chemical Treatment

Tear out here

ENVIRONMENTAL PROTECTION AGENCY

Facility Biennial Hazardous Waste Report for 1983 (cont.)

This report is for the calendar year ending December 31, 1983.

IX. FACILITY'S EPA I.D. NO.

CTD990672081 T/A C

X. GENERATOR'S EPA I.D. NO.

CTD001449511

XI. GENERATOR NAME (specify generator from whom all wastes on this page were received)

Pratt + Whitney Aircraft ON-SITE ☐

XII. GENERATOR ADDRESS

415 Washington Ave
New Haven, Ct

XIII. TOTAL WASTE IN STORAGE ON DECEMBER 31, 1983 (complete this section only once for your facility)

S01 AMOUNT OF WASTE UOM S02 AMOUNT OF WASTE UOM S03 AMOUNT OF WASTE UOM
S04 AMOUNT OF WASTE UOM S05 AMOUNT OF WASTE UOM

XIV. WASTE IDENTIFICATION

Sequence #	A. Description of Waste	B. EPA Hazardous Waste No. (see instructions)	C. Handling Method	D. Amount of Waste	E. Unit of Measure
1	Waste Hydrochloric Acid 20%	D002	T04	8980	P
2	Waste Nitric Acid 50%	D001	T04	679439	P
3	Waste Caustic Liq nos Nickel Strike Sol	D002	T04	7955	P
4	Waste Hydrochloric Acid Sol Inhibited 10%	D002	T04	9829	P
5	Waste Acid Sol nos Nitric-Hydrofluoric Sol	D001	T04	7457	P
6	Waste Hydrofluoric + Sulfuric Acid Mixture	D002	T04	56137	P
7	Waste Alkaline Liq nos Light Dt Alkali Cleaner	D002	T04	5329	P
8	Waste Caustic Liq nos Chromate Conversion Sol	D002	T04	33717	P
9	Waste Copper Cyanide	F007	D84	3040	P
10	Waste Caustic Liquid Poisonous nos Alk Strip Sol	F009	D84	48470	P
11	Hazardous Waste Liq nos Cadmium Plating Sol	F007	D84	21239	P
12	Waste Cyanide Sol nos Nickel Strip Sol	F009	S02	4830	P

XV. COMMENTS (enter information by section number—see instructions)

Section XIV Explanation for Handling Codes - Col. C

Lines 1 thru 8 - Chemical Treatment
Lines 9 thru 11 - Vendor Disposal by Chemical Treatment

Tear out here

ENVIRONMENTAL PROTECTION AGENCY

Facility Biennial Hazardous Waste Report for 1983 (cont.)

This report is for the calendar year ending December 31, 1983.

IX. FACILITY'S EPA I.D. NO. T/A C
CTD 990672081 (1 2 — 13 14 15)

X. GENERATOR'S EPA I.D. NO.
CTD001449511 (16 — 28)

XI. GENERATOR NAME (specify generator from whom all wastes on this page were received)
Pratt + Whitney Aircraft ON-SITE ☐

XII. GENERATOR ADDRESS
415 Washington Avenue
North Haven, Ct

XIII. TOTAL WASTE IN STORAGE ON DECEMBER 31, 1983 (complete this section only once for your facility)
S01 AMOUNT OF WASTE UOM | S02 AMOUNT OF WASTE UOM | S03 AMOUNT OF WASTE UOM
S04 AMOUNT OF WASTE UOM | S05 AMOUNT OF WASTE UOM

XIV. WASTE IDENTIFICATION

Sequence #	A. Description of Waste	B. EPA Hazardous Waste No (see instructions)	C. Handling Method	D. Amount of Waste	E. Unit of Measure
1	Waste Cyanide Sol. NOS Nickel Strip Sol.	D003	D84	27909	P
2	Waste Sulfuric Solid	D003	D80	37678	P
3	Hazardous Waste Solids NOS Dy Aluminum Casting	D003	D80	72132	P
4	Waste Denatured Alcohol	D001	D84	465	P
5	Waste Compound Lacquer Thinning Liq	D001	D84	913	P
6	Waste 1,1,1 Trichloroethane	F002	D84	3513	P
7	Waste Solvents NOS Trichlorotrifluoroethane	F002	D84	639	P
8	Hazardous Waste Liquids NOS Oil + Solvents Mix	F002	D84	1891.0	P
9	Waste Paint Sludge	D001	D84	1784	P
10	Waste Paint, Lacquer Thinner	D001	D84	442	P
11	Waste 1,1,1 Trichloroethane	F002	S01	1195	P
12	Hazardous Waste Solid NOS Wet Chlorinated Solvents	F002	D84	195897	P

XV. COMMENTS (enter information by section number—see instructions)

Section XIV Explanations for Handling Code - Col C

Lines 4 thru 10 & 12 - Vendor Disposal by Incineration

Line 1 - Vendor Disposal by Chemical Treatment

Line 2 + 3 - Vendor Disposal by Landfill

Tear out here

ENVIRONMENTAL PROTECTION AGENCY

Facility Biennial Hazardous Waste Report for 1983 (cont.)

This report is for the calendar year ending December 31, 1983.

IX. FACILITY'S EPA I.D. NO. T/A C

CTD 990621081 1

X. GENERATOR'S EPA I.D. NO.

CTD 000144951 1

XI. GENERATOR NAME (specify generator from whom all wastes on this page were received)

Pratt + Whitney Aircraft ON-SITE ☐

XII. GENERATOR ADDRESS

415 Washington Ave
North Haven. Ct

XIII. TOTAL WASTE IN STORAGE ON DECEMBER 31, 1983 (complete this section only once for your facility)

S01 AMOUNT OF WASTE UOM | S02 AMOUNT OF WASTE UOM | S03 AMOUNT OF WASTE UOM

S04 AMOUNT OF WASTE UOM | S05 AMOUNT OF WASTE UOM

XIV. WASTE IDENTIFICATION

Sequence #	A. Description of Waste	B. EPA Hazardous Waste No. (see instructions)	C. Handling Method	D. Amount of Waste	E. Unit of Measure
1	Waste Nitric Acid 62%	D002	T04	2877	P
2					
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					

XV. COMMENTS (enter information by section number—see instructions)

Section XIV. Explanation for Handling Code - Col C

Line 1 - Chemical Treatment

Tear out here

ENVIRONMENTAL PROTECTION AC CY

Facility Biennial Hazardous Waste Report for 1983 (cont.)

This report is for the calendar year ending December 31, 1983.

IX. FACILITY'S EPA I.D. NO.

CTD 990672081 T/A C

XI. GENERATOR NAME (specify generator from whom all wastes on this page were received)

Pratt + Whitney Aircraft ON-SITE ☐

X. GENERATOR'S EPA I.D. NO.

CTD 010114227

XII. GENERATOR ADDRESS

Aircraft Road
Southington. Ct 06489

XIII. TOTAL WASTE IN STORAGE ON DECEMBER 31, 1983 (complete this section only once for your facility)

S01 AMOUNT OF WASTE UOM S02 AMOUNT OF WASTE UOM S03 AMOUNT OF WASTE UOM
S04 AMOUNT OF WASTE UOM S05 AMOUNT OF WASTE UOM

XIV. WASTE IDENTIFICATION

Sequence #	A. Description of Waste	B. EPA Hazardous Waste No. (see instructions)	C. Handling Method	D. Amount of Waste	E. Unit of Measure
1	Waste 1,1,1 Trichloroethane	F002	D.84	9179	P
2	Waste compound, Lacquer Thinning Liquid	D001	D.84	40	P
3	Waste Methyl Alcohol	D001	D.84	379	P
4	Waste Chloride	F001	D.84	2697	P
5	Waste Caustic Soda Liq	D002	T.04	3050	P
6	Waste Acid Sol. nos Nitric-Hydrofluoric Sol.	D001	T.04	12495	P
7	Waste Acid Sol. nos Titanium Etching Sol.	D002	T.04	4715	P
8	Waste Acid Sol. nos Descaling Sol.	D002	T.04	5250	P
9	Waste Denatured Alcohol Sol.	D001	S.02	125	P
10	Waste Acid Sol. nos Chromate Conversion Sol.	D007	T.04	4615	P
11	Hazardous Waste Solid nos Alkali Sludge	D002	S.01	5449	P
12	Waste Sulfur Solid	D003	D.80	12831	P

XV. COMMENTS (enter information by section number—see instructions)

Section XIV. Explanations for Handling Codes - Col C

Line 1, 2, 3 + 4 - Vendor Disposal by Incineration

Line 5, 6, 7, 8, + 10 - Chemical Treatment

Line 12 - Vendor Disposal by Landfill

Tear out here

ENVIRONMENTAL PROTECTION AGENCY

Facility Biennial Hazardous Waste Report for 1983 (cont.)

This report is for the calendar year ending December 31, 1983.

IX. FACILITY'S EPA I.D. NO. T/A C

CTD991067208 1

X. GENERATOR'S EPA I.D. NO.

CTD003935905

XI. GENERATOR NAME (specify generator from whom all wastes on this page were received)

Pratt + Whitney Aircraft ON-SITE ☐

XII. GENERATOR ADDRESS

Aircraft Road
Middletown, Ct
06457

XIII. TOTAL WASTE IN STORAGE ON DECEMBER 31, 1983 (complete this section only once for your facility)

S01 AMOUNT OF WASTE UOM S02 AMOUNT OF WASTE UOM S03 AMOUNT OF WASTE UOM
S04 AMOUNT OF WASTE UOM S05 AMOUNT OF WASTE UOM

XIV. WASTE IDENTIFICATION

Sequence #	A. Description of Waste	B. EPA Hazardous Waste No. (see instructions)	C. Handling Method	D. Amount of Waste	E. Unit of Measure
1	Waste Alkaline Liquid NOS Alkali Cleaner	D002	T04	68396	P
2	Waste Alkaline Liquid NOS Hvy Duty Alkali Cleaner	D002	T04	30146	P
3	Waste Potassium Hydroxide Liq	D002	T04	21176	P
4	Waste Sodium Hydroxide Granules	D002	T04	138	P
5	Waste Alkaline Liquid NOS Mixed Alkali	D002	T04	436	P
6	Waste Cuprin Sulfate	D002	T04	22	P
7	Waste Nitric Acid 50%	D001	T04	15998	P
8	Waste Phosphoric Acid 70%	D002	T04	2890	P
9	Waste Hydrochloric Acid Solution 65%	D002	T04	3636	P
10	Hazardous Waste Liq NOS Descaling Solution	D002	T04	39000	P
11	Hazardous Waste Liq NOS Nitric Hydrofluoric Descal Sol	D002	T04	33214	P
12	Waste Electrolyte (Acid) Battery Fluid	D002	T04	746	P

XV. COMMENTS (enter information by section number—see instructions)

Section XIV Explanation for Handling Codes - Cal. C

Lines 1 thru 12 - Chemical Treatment

Tear out here

ENVIRONMENTAL PROTECTION AGENCY

Facility Biennial Hazardous Waste Report for 1983 (cont.)

This report is for the calendar year ending December 31, 1983.

IX. FACILITY'S EPA I.D. NO. T/A C

[redacted] C T D 9 9 0 1 6 7 2 0 1 8 / [redacted]

1 2 13 14 15

X. GENERATOR'S EPA I.D. NO.

[redacted] C T D 0 0 3 9 3 5 9 0 5

16 28

XI. GENERATOR NAME (specify generator from whom all wastes on this page were received)

Pratt + Whitney Aircraft ON-SITE ☐

XII. GENERATOR ADDRESS

Aircraft Road
Middletown, Ct 06457

XIII. TOTAL WASTE IN STORAGE ON DECEMBER 31, 1983 (complete this section only once for your facility)

S01 AMOUNT OF WASTE UOM S02 AMOUNT OF WASTE UOM S03 AMOUNT OF WASTE UOM

S04 AMOUNT OF WASTE UOM S05 AMOUNT OF WASTE UOM

XIV. WASTE IDENTIFICATION

Sequence #	A. Description of Waste	B. EPA Hazardous Waste No. (see instructions)	C. Handling Method	D. Amount of Waste	E. Unit of Measure
1	Waste Acid Liq. nos Mixed Acids	D002	T04	3912	P
2	Waste Chromic Acid Sol.	D007	T04	26035	P
3	Waste Sodium Dichromate Sol.	D007	T04	21468	P
4	Waste Acid Sol. nos Chromic Phosphoric Acid	D007	T04	15268	P
5	Hazardous Waste Liq nos Trivalent Chrome	D007	T04	41654	P
6	Waste Corrosive Liquid Corrosives nos.	F009	D84	10486	P
7	Alkali Smut Removal Sol.		—	—	—
8	Waste Cyanide Sol. nos Cyanide Mixture	F009	D84	1400	P
9	Hazardous Waste Solid, nos Oil Alum. Casting	D003	D80	878	P
10	Waste Paint Lacquer Thinner	D001	D84	2656	P
11	Waste Rust Preventive Coating Liquid	D001	S01	606	P
12	Waste Combustible Liq nos Bio Safe Skimicide A-9	D001	D84	542	P

XV. COMMENTS (enter information by section number—see instructions)

Section XIV Explanation for Handling Codes - Col. C

Lines 1 thru 5 - Chemical Treatment

Lines 10 + 12 - Vendor Disposal by Incineration

Lines 6 + 8 - Vendor Disposal by Chemical Treatment

Line 9 - Vendor Disposal by Landfill

tear out here

ENVIRONMENTAL PROTECTION AGENCY

Facility Biennial Hazardous Waste Report for 1983 (cont.)

This report is for the calendar year ending December 31, 1983.

IX. FACILITY'S EPA I.D. NO.

C T D 9 9 0 6 7 2 0 8 1 (T/A/C)

XI. GENERATOR NAME (specify generator from whom all wastes on this page were received)

Pratt + Whitney Aircraft ON-SITE ☐

XII. GENERATOR ADDRESS

Aircraft Road
Middletown, Ct 06457

X. GENERATOR'S EPA I.D. NO.

C T D 0 0 3 9 3 5 9 0 5

XIII. TOTAL WASTE IN STORAGE ON DECEMBER 31, 1983 (complete this section only once for your facility)

S01 AMOUNT OF WASTE UOM | S02 AMOUNT OF WASTE UOM | S03 AMOUNT OF WASTE UOM
S04 AMOUNT OF WASTE UOM | S05 AMOUNT OF WASTE UOM

XIV. WASTE IDENTIFICATION

Sequence #	A. Description of Waste	B. EPA Hazardous Waste No. (see instructions)	C. Handling Method	D. Amount of Waste	E. Unit of Measure
1	Waste Acid Sludge	D002	S01	1170	P
2	Hazardous Waste Solid nos Alkali Sludge	D002	S01	1463	P
3	Hazardous Waste Solid nos Chrome Sludge	D007	S01	270	P
4	Waste Cyanide Solid, nos Cyanide Sludge	F008	S01	312	P
5	Waste Corrosive Solid nos Halide Salts	D002	S01	5446	P
6	Waste Corrosive Solid nos Halide Salts	D002	D80	13816	P
7	Waste Solvents nos High Low Flash Solvents	F002	D84	948	P
8	Hazardous Waste Liq nos Halogenated Still Bottoms	F002	D84	5825	P
9	Waste Solvents nos Standard Solvents	D001	D84	1172	P
10	Waste Turpentine	D001	D84	700	P
11	Waste Denatured Alcohol	D001	D84	9042	P
12	Waste Perchloroethylene	F001	D84	928	P

XV. COMMENTS (enter information by section number—see instructions)

Section XIV. Explanation for Handling Codes - Col. C

Lines 7 thru 12 - Vendor Disposal by Incineration

Line 6 - Vendor Disposal by Landfill

Tear out here

ENVIRONMENTAL PROTECTION AGENCY

Facility Biennial Hazardous Waste Report for 1983 (cont.)

This report is for the calendar year ending December 31, 1983.

IX. FACILITY'S EPA I.D. NO. T/A C

C T D 9 9 0 6 7 2 0 8 1 (1 2 13 14 15)

X. GENERATOR'S EPA I.D. NO.

C T D 0 0 3 9 3 5 9 0 5 (16 28)

XI. GENERATOR NAME (specify generator from whom all wastes on this page were received)

Pratt + Whitney Aircraft ON-SITE ☐

XII. GENERATOR ADDRESS

Aircraft Road
Middletown, Ct 06457

XIII. TOTAL WASTE IN STORAGE ON DECEMBER 31, 1983 (complete this section only once for your facility)

S01 AMOUNT OF WASTE UOM S02 AMOUNT OF WASTE UOM S03 AMOUNT OF WASTE UOM
S04 AMOUNT OF WASTE UOM S05 AMOUNT OF WASTE UOM

XIV. WASTE IDENTIFICATION

Sequence #	A. Description of Waste	B. EPA Hazardous Waste No. (see instructions)	C. Handling Method	D. Amount of Waste	I. Unit of Measure
1	Waste 1,1,1 Trichloroethane	F002	D84	1011	P
2	Waste Isopropanol	D001	D84	2502	P
3	Waste Flammable Liq NOS Cleaning + Etching Sol	D001	D84	6364	P
4	Hazardous Waste Liq NOS Oils + Solvents Mixture	F002	S02	676	P
5					
6					
7					
8					
9					
10					
11					
12					

XV. COMMENTS (enter information by section number—see instructions)

Section XIV Explanation for Handling Code - Col. C
Lines 1 thru 3 - Vendor disposal by Incineration

Tear out here

ENVIRONMENTAL PROTECTION AGENCY

Facility Biennial Hazardous Waste Report for 1983 (cont.)

This report is for the calendar year ending December 31, 1983.

IX. FACILITY'S EPA I.D. NO. T/A C

CTD990672081

XI. GENERATOR NAME (specify generator from whom all wastes on this page were received)

Pratt + Whitney Aircraft ON-SITE ☐

X. GENERATOR'S EPA I.D. NO.

CTD010843214

XII. GENERATOR ADDRESS

Pine Street
Manchester, Ct 06040

XIII. TOTAL WASTE IN STORAGE ON DECEMBER 31, 1983 (complete this section only once for your facility)

S01 AMOUNT OF WASTE UOM S02 AMOUNT OF WASTE UOM S03 AMOUNT OF WASTE UOM
S04 AMOUNT OF WASTE UOM S05 AMOUNT OF WASTE UOM

XIV. WASTE IDENTIFICATION

Sequence #	A. Description of Waste	B. EPA Hazardous Waste No (see instructions)	C. Handling Method	D. Amount of Waste	E. Unit of Measure
1	Waste Denatured Alcohol	D001	D84	1146	P
2	Hazardous Waste Solid NOS Still Bottoms + Grits Wax	F002	D84	2499	P
3	Hazardous Waste Solid NOS Still Bottoms + Grits Wax	F002	T04	2640	P
4	Waste Alkaline Liquid NOS Stable Emulsion Cleaner	D002	T04	11657	P
5	Waste Phosphoric Acid 70%	D002	T04	3290	P
6	Waste Acid Liquid NOS Muriatic + Ferric Chloride	D002	T04	958	P
7	Waste 1,1,1 Trichloroethane	F002	D84	3267	P
8					
9					
10					
11					
12					

XV. COMMENTS (enter information by section number—see instructions)

Section XIV. Explanations for Handling Codes - Col. C
Lines 1, 2 + 7 - Disposal by Incineration (Vendor)
Line 3 - Solvent Recovery
Lines 4, 5 + 6 - Chemical Treatment

Tear out here

ENVIRONMENTAL PROTECTION AGENCY

Facility Biennial Hazardous Waste Report for 1983 (cont.)

This report is for the calendar year ending December 31, 1983.

IX. FACILITY'S EPA I.D. NO.

T/A C

CTD990672081 (1 2 ... 13 14 15)

X. GENERATOR'S EPA I.D. NO.

CTD008144407 (16 ... 28)

XI. GENERATOR NAME (specify generator from whom all wastes on this page were received)

Pratt + Whitney Aircraft ON-SITE ☐

XII. GENERATOR ADDRESS

Dividend Road
Rocky Hill, Ct 06067

XIII. TOTAL WASTE IN STORAGE ON DECEMBER 31, 1983 (complete this section only once for your facility)

S01 AMOUNT OF WASTE UOM | S02 AMOUNT OF WASTE UOM | S03 AMOUNT OF WASTE UOM
S04 AMOUNT OF WASTE UOM | S05 AMOUNT OF WASTE UOM

XIV. WASTE IDENTIFICATION

Sequence #	A. Description of Waste	B. EPA Hazardous Waste No. (see instructions)	C. Handling Method	D. Amount of Waste	E. Unit of Measure
1	Waste Solvent, nos Stoddard Solvent	D001	S02	196	P
2	Waste compound Lacquer Thinning Liquid	D001	S02	730	P
3	Waste Methyl Ethyl Ketone	F005	S02	254	P
4	Waste Solvents, nos High + Low Flash Solvents	D001	S02	312	P
5	Waste Nitric Acid 50%	D001	T04	2800	P
6	Waste Nitric Acid 80%	D002	T04	11300	P
7	Waste Hydrochloric Acid Sol 65%	D002	T04	18296	P
8	Waste Alkaline Liq nos Alkali Cleaner	D002	T04	5600	P
9	Waste Acid Sol. nos Oxidizer Solution	D002	T04	12786	P
10	Waste Acid Liq nos Mixed Acids	D002	T04	2560	P
11	Waste Oxidizer, Corrosive Liquid nos	D001	T04	14704	P
12	Deoxidizer Solution	—	—	—	—

XV. COMMENTS (enter information by section number—see instructions)

Section XIV Explanation for Handling Codes - Col C

Lines 5 thru 11 - Chemical Treatment

Tear out here

ENVIRONMENTAL PROTECTION AGENCY

Facility Biennial Hazardous Waste Report for 1983 (cont.)

This report is for the calendar year ending December 31, 1983.

IX. FACILITY'S EPA I.D. NO. T/A C

[redacted] C T D 9 9 0 6 7 2 0 8 1 [redacted]

1 2 13 14 15

X. GENERATOR'S EPA I.D. NO.

[redacted] C T D 0 0 8 4 4 4 0 1 7

16 28

XI. GENERATOR NAME (specify generator from whom all wastes on this page were received)

Pratt - Whitney Aircraft ON-SITE ☐

XII. GENERATOR ADDRESS

Dividend Road

Rocky Hill, Ct 06067

XIII. TOTAL WASTE IN STORAGE ON DECEMBER 31, 1983 (complete this section only once for your facility)

S01 AMOUNT OF WASTE UOM S02 AMOUNT OF WASTE UOM S03 AMOUNT OF WASTE UOM

S04 AMOUNT OF WASTE UOM S05 AMOUNT OF WASTE UOM

XIV. WASTE IDENTIFICATION

Sequence #	A. Description of Waste	B. EPA Hazardous Waste No (see instructions)	C. Handling Method	D. Amount of Waste	E. Unit of Measure
1	Waste Perchlorethylene	F009	T04	2400	P
2	Waste 1,1,1 Trichlorethane	F002	T04	22000	P
3	Waste 1,1,1 Trichlorethane	F002	D84	2340	P
4	Waste Chromic Acid, Sol.	D007	T04	4394	P
5					
6					
7					
8					
9					
10					
11					
12					

Tear out here

XV. COMMENTS (enter information by section number—see instructions)

Section XIV. Explanations for Handling Codes - Col. C

Lines 1 & 2 - Solvent Recovery

Line 3 - Vendor Disposal by Incineration

Line 4 - Chemical Treatment

ENVIRONMENTAL PROTECTION AGENCY

Facility Biennial Hazardous Waste Report for 1983 (cont.)

This report is for the calendar year ending December 31, 1983.

IX. FACILITY'S EPA I.D. NO. T/A C

CTD990612018 1

XI. GENERATOR NAME (specify generator from whom all wastes on this page were received)

Pratt + Whitney Aircraft ON-SITE ☐

X. GENERATOR'S EPA I.D. NO.

ME0001916181

XII. GENERATOR ADDRESS

Rt 9
Wells Road
N Berwick, Maine

XIII. TOTAL WASTE IN STORAGE ON DECEMBER 31, 1983 (complete this section only once for your facility)

S01 AMOUNT OF WASTE UOM S02 AMOUNT OF WASTE UOM S03 AMOUNT OF WASTE UOM
S04 AMOUNT OF WASTE UOM S05 AMOUNT OF WASTE UOM

XIV. WASTE IDENTIFICATION

Sequence #	A. Description of Waste	B. EPA Hazardous Waste No. (see instructions)	C. Handling Method	D. Amount of Waste	E. Unit of Measure
1	Waste Solvent, NOS Stoddard Solvent	D001	D84	5760	P
2	Waste Solvents NOS Petroleum Solvent	D001	D84	10387	P
3	Waste Perchlorethylene	F001	D84	1641	P
4	Waste compound Lacquer Thinning Lig	D001	D84	402	P
5	Waste 1,1,1 Trichloroethane	F002	D84	520	P
6	Waste Methyl Ethyl Ketone	F005	D84	10222	P
7	Waste Solvents NOS Trichlorotrifluoroethane	F002	D84	110	P
8	Hazardous Waste, NOS Mix Chlorinated Solvents	F002	D84	95772	P
9	Waste Paint Lacquer Thinner	D001	D84	2850	P
10	Waste Solvents NOS High + Low Flash Solvents	F002	D84	2195	P
11	Hazardous Waste Liq NOS Oil/Solvents mixture	F002	D84	396	P
12	Waste 1,1,1 Trichloroethane (Sludge)	F002	S01	580	P

XV. COMMENTS (enter information by section number—see instructions)

Section XIV Explanations for Handling Codes - Col C
Lines 1 thru 11 - Vendor Disposal by Incineration

Tear out here

ENVIRONMENTAL PROTECTION AGENCY

Facility Biennial Hazardous Waste Report for 1983 (cont.)

This report is for the calendar year ending December 31, 1983.

Date rec'd: _____ Rec'd by: _____

IX. FACILITY'S EPA I.D. NO.

C T D 9 9 0 6 7 2 0 8 1 | TAC

XI. GENERATOR NAME (specify generator from whom all wastes on this page were received)

Pratt + Whitney Aircraft
Willgoos Laboratory ON-SITE ☐

X. GENERATOR'S EPA I.D. NO.

C T D 0 0 0 8 4 5 1 3 1

XII. GENERATOR ADDRESS

Main Street
East Hartford, CT

XIII. TOTAL WASTE IN STORAGE ON DECEMBER 31, 1983 (complete this section only once for your facility)

S01 AMOUNT OF WASTE ____ UOM ____ S02 AMOUNT OF WASTE ____ UOM ____ S03 AMOUNT OF WASTE ____ UOM ____

S04 AMOUNT OF WASTE ____ UOM ____ S05 AMOUNT OF WASTE ____ UOM ____

XIV. WASTE IDENTIFICATION

Sequence #	A Description of Waste	B EPA Hazardous Waste No (see instructions)	C Handling Method	D Amount of Waste	Unit of Measure
1	Waste Caustic Soda Liquid	D002	T04	140	P
2	Waste Petroleum Naphtha	D001	D84	1750	P
3	Waste Trichloroethylene	U228	D84	23708	P
4	Waste Methyl Ethyl Ketone	F005	D84	70	P
5	Waste Isooctane	D001	D84	260	P
6	Waste Jet Fuel Aviation Mix	D001	D84	380	P
7	Waste Ethylene Glycol Monomethyl Ether	D001	D84	4400	P
8					
9					
10					
11					
12					

XV. COMMENTS (enter information by section number—see instructions)

Section XIV. Explanations for Handling Codes - Col C

Line 1 - Chemical Treatment

Lines 2 thru 7 - Vendor Disposal by Incineration

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ENVIRONMENTAL PROTECTION AGENCY

Facility Biennial Hazardous Waste Report for 1983 (cont.)

This report is for the calendar year ending December 31, 1983.

IX. FACILITY'S EPA I.D. NO. T/A C

CTD990672081

X. GENERATOR'S EPA I.D. NO.

CTD010167791

XI. GENERATOR NAME (specify generator from whom all wastes on this page were received)

Power Systems Div.
Fuel Cell Operations ON-SITE ☐

XII. GENERATOR ADDRESS

Po Box 109
Governors Highway
So. Windsor, Ct 06074

XIII. TOTAL WASTE IN STORAGE ON DECEMBER 31, 1983 (complete this section only once for your facility)

S01 AMOUNT OF WASTE UOM S02 AMOUNT OF WASTE UOM S03 AMOUNT OF WASTE UOM
S04 AMOUNT OF WASTE UOM S05 AMOUNT OF WASTE UOM

XIV. WASTE IDENTIFICATION

Sequence #	A Description of Waste	B EPA Hazardous Waste No. (see instructions)	C. Handling Method	D Amount of Waste	E Unit of Measure
1	Waste Potassium Hydroxide Dry Solid Beads	D002	T04	1200	P
2	Waste Isopropanol	D001	D84	265	P
3	Waste Solvents, nos High - Low Flash Solvents	D002	D84	9203	P
4	Hazardous Waste Solid nos Varnish - Paint Sludge	F017	D84	3510	P
5	Waste Acid Liquid nos mixed acids	D002	T04	10374	P
6	Waste Alkaline Liq nos mixed alkali	D002	T04	7098	P
7					
8					
9					
10					
11					
12					

XV. COMMENTS (enter information by section number—see instructions)

Section XIV Explanations for Handling Codes - Col. C

Lines 1, 5 + 6 - Chemical Treatment

Lines 2, 3 + 4 - Vendor Disposal by Incineration

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ENVIRONMENTAL PROTECTION AGENCY

Facility Biennial Hazardous Waste Report for 1983 (cont.)

This report is for the calendar year ending December 31, 1983.

IX. FACILITY'S EPA I.D. NO.

T/A C

C T D 9 9 0 6 7 2 0 8 1

1 2 13 14 15

X. GENERATOR'S EPA I.D. NO.

C T D 0 0 0 8 4 4 3 3 2

16 28

XI. GENERATOR NAME (specify generator from whom all wastes on this page were received)

Pratt + Whitney Aircraft ON-SITE ☐

XII. GENERATOR ADDRESS

Newell Street
Southington, Ct

XIII. TOTAL WASTE IN STORAGE ON DECEMBER 31, 1983 (complete this section only once for your facility)

S01 AMOUNT OF WASTE UOM S02 AMOUNT OF WASTE UOM S03 AMOUNT OF WASTE UOM

S04 AMOUNT OF WASTE UOM S05 AMOUNT OF WASTE UOM

XIV. WASTE IDENTIFICATION

Sequence #	A. Description of Waste	B. EPA Hazardous Waste No (see instructions)	C. Handling Method	D. Amount of Waste	E. Unit of Measure
1	Waste Nitric Acid over 40%	D007	T04	5738	P
2	Waste Nitric Acid, 50%	D001	T04	3876	P
3	Waste Sulfuric Acid, Spent 40%	D002	T04	33285	P
4	Waste Hydrochloric Acid Gl Inhibited	D002	T04	9976	P
5	Waste Acid Sol. nos Nitric + Hydrofluoric	D001	T04	8100	P
6	Waste Hydrochloric Acid Sol. 65%	D002	T04	32866	P
7	Waste Hydrofluoric + Sulfuric Acid Mixture	D002	T04	14000	P
8	Waste Nitric Acid 20%	D002	T04	3640	P
9	Waste Acid Sol. nos Oleseling Sol	D002	T04	9920	P
10	Waste Hydrochloric Acid Mix	D002	T04	22223	P
11	Waste Acid Liquid nos Mixed Acids	D002	T04	42263	P
12	Waste Corrosive Liquid nos Nickel Strike Sol.	D002	T04	3158	P

XV. COMMENTS (enter information by section number—see instructions)

Section XIV. - Explanation for Handling Codes - Col. C

Lines 1 thru 12 - Chemical Treatment

Tear out here

ENVIRONMENTAL PROTECTION AGENCY

Facility Biennial Hazardous Waste Report for 1983 (cont.)

This report is for the calendar year ending December 31, 1983.

IX. FACILITY'S EPA I.D. NO. T/A C

CTD990672081

X. GENERATOR'S EPA I.D. NO.

CTD000844332

XI. GENERATOR NAME (specify generator from whom all wastes on this page were received)

Pratt & Whitney Aircraft ON-SITE ☐

XII. GENERATOR ADDRESS

Newell Street
Southington, Ct

XIII. TOTAL WASTE IN STORAGE ON DECEMBER 31, 1983 (complete this section only once for your facility)

S01 AMOUNT OF WASTE UOM S02 AMOUNT OF WASTE UOM S03 AMOUNT OF WASTE UOM
S04 AMOUNT OF WASTE UOM S05 AMOUNT OF WASTE UOM

XIV. WASTE IDENTIFICATION

LINE #	A. Description of Waste	B. EPA Hazardous Waste No. (see instructions)	C. Handling Method	D. Amount of Waste	E. Unit of Measure
1	Waste Phosphoric Acid	D002	T04	29540	P
2	Waste Sodium Hydrogen Sulfate Sol.	D002	T04	51240	P
3	Waste Hydrogen Peroxide Sol 50%	D001	T04	5530	P
4	Waste Potassium Hydroxide	D002	T04	5320	P
5	Waste Sodium Hydroxide Sol.	D002	T04	2180	P
6	Waste Alkaline Liquid nos Hvy Duty Alkal Cleaner	D002	T04	5126	P
7	Waste Oxidizer, Corrosive Liq nos	D002	T04	60120	P
8	Caustic-Potassium Permanganate Sol.		—	—	—
9	Hazardous Waste Liq. nos Nickel Strip Sol. (Non-CN)	D002	T04	21448	P
10	Waste Ammonium Nitrate Sol.	D001	T04	5400	P
11	Waste Alkaline Sol. nos Nickel Strip Sol. (non-cn)	D002		13780	P
12	Waste Alkaline Liq. nos Mixed Alkali	D002	T04	2695	P

XV. COMMENTS (enter information by section number—see instructions)

Section XIV Explanation for Handling Codes - Col. C

Lines 1 thru 12 - Chemical Treatment

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ENVIRONMENTAL PROTECTION AGENCY

Facility Biennial Hazardous Waste Report for 1983 (cont.)

This report is for the calendar year ending December 31, 1983.

IX. FACILITY'S EPA I.D. NO. T/A C

CTD990672081 (1 2 ... 13 14 15)

X. GENERATOR'S EPA I.D. NO.

CTD000844332 (16 ... 28)

XI. GENERATOR NAME (specify generator from whom all wastes on this page were received)

Pratt + Whitney Aircraft ON-SITE ☐

XII. GENERATOR ADDRESS

Newell St.
Southington, Ct

XIII. TOTAL WASTE IN STORAGE ON DECEMBER 31, 1983 (complete this section only once for your facility)

S01 AMOUNT OF WASTE UOM | S02 AMOUNT OF WASTE UOM | S03 AMOUNT OF WASTE UOM
S04 AMOUNT OF WASTE UOM | S05 AMOUNT OF WASTE UOM

XIV. WASTE IDENTIFICATION

Sequence #	A. Description of Waste	B. EPA Hazardous Waste No. (see instructions)	C. Handling Method	D. Amount of Waste	E. Unit of Measure
1	Waste Alkaline Liq. nos Aero Dip	D002	T04	73980	P
2	Waste Chromic Acid Sol. Chromic Acid	D007	T04	7000	P
3	Waste Corrosive Liq. nos Chromate Conversion Sol.	D007	T04	5460	P
4	Waste Acid Sol. nos Chromium Plating Sol.	D007	T04	7832	P
5	Hazardous Waste Liq nos Aluminum Coating	D007	T04	8760	P
6	Hazardous Waste Liq. nos Chrome Mixture	D007	T04	17412	P
7	Waste Sodium Cyanide Sol. Sodium Cyanide	F009	D84	11782	P
8	Waste Caustic Liquid Poisonous, nos	F009	D84	3600	P
9	Alkali Anode Removal Sol.		—	—	—
10	Waste Cyanide Sol. nos Nickel Strip Sol	F009	S02	7090	P
11	Waste Cyanide Sol. nos Nickel Strip Sol.	F009	D84	35824	P
12	Waste Cyanide Sol. nos Cyanide Mixture	F009	D84	5866	P

XV. COMMENTS (enter information by section number—see instructions)

Section XIV Explanation for Handling Codes - Col C

Lines 1 thru 6 - Chemical Treatment

Lines 7, 8, 11 & 12 - Vendor Disposal by Chemical Treatment

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ENVIRONMENTAL PROTECTION AC CY

Facility Biennial Hazardous Waste Report for 1983 (cont.)

This report is for the calendar year ending December 31, 1983.

IX. FACILITY'S EPA I.D. NO. T/A C

CTD990672081

1 2 13 14 15

X. GENERATOR'S EPA I.D. NO.

CTD000843332

16 28

XI. GENERATOR NAME (specify generator from whom all wastes on this page were received)

Pratt + Whitney Aircraft ON-SITE ☐

XII. GENERATOR ADDRESS

Newell St
Southington, Ct

XIII. TOTAL WASTE IN STORAGE ON DECEMBER 31, 1983 (complete this section only once for your facility)

S01 AMOUNT OF WASTE UOM S02 AMOUNT OF WASTE UOM S03 AMOUNT OF WASTE UOM

S04 AMOUNT OF WASTE UOM S05 AMOUNT OF WASTE UOM

XIV. WASTE IDENTIFICATION

Sequence #	A. Description of Waste	B. EPA Hazardous Waste No. (see instructions)	C. Handling Method	D. Amount of Waste	E. Unit of Measure
1	Hazardous Waste Solid NOS Alum Coating, diffused	D003	D80	36845	P
2	Waste Solvent NOS Petroleum Solvent	D001	D84	3156	P
3	Waste Acid Sludge	D002	S01	1864	P
4	Waste Acid Sludge	D002	T04	1110	P
5	Hazardous Waste Solid NOS Nickel Sludge	D002	S01	60	P
6	Hazardous Waste Solid NOS Chrome Sludge	D007	S01	452	P
7	Waste Cyanide Solid, NOS Cyanide Sludge	F008	S01	976	P
8	Waste Solvents NOS Trichlorotrifluoroethane	F002	S02	352	P
9	Hazardous Waste Solid NOS Dual Carbon Paint Remover	D002	S01	430	P
10	Waste Solvents NOS High + Low Flash Solvents	F002 D001	D84	10338	P
11	Waste Solvents NOS High + Low Flash Solvents	D002	S02	715	P
12	Waste Solvents NOS High + Low Flash Solvents	D002	D84	6816	P

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XV. COMMENTS (enter information by section number—see instructions)

Section XIV Explanation for Handling Codes - Col C

Lines 2, 10 + 12 - Vendor Disposal by Incineration

Line 4 - Chemical Treatment

Line 1 - Vendor Disposal by Landfill

ENVIRONMENTAL PROTECTION AGENCY

Facility Biennial Hazardous Waste Report for 1983 (cont.)

This report is for the calendar year ending December 31, 1983.

IX. FACILITY'S EPA I.D. NO.

T/A C

C T D 9 9 0 6 7 2 0 8 1

1 2 13 14 15

X. GENERATOR'S EPA I.D. NO.

C T 0 0 0 8 4 4 3 2

16 28

XI. GENERATOR NAME (specify generator from whom all wastes on this page were received)

Pratt + Whitney Aircraft ON-SITE ☐

XII. GENERATOR ADDRESS

Newell street
Southington, Ct

XIII. TOTAL WASTE IN STORAGE ON DECEMBER 31, 1983 (complete this section only once for your facility)

S01 AMOUNT OF WASTE UOM S02 AMOUNT OF WASTE UOM S03 AMOUNT OF WASTE UOM

S04 AMOUNT OF WASTE UOM S05 AMOUNT OF WASTE UOM

XIV. WASTE IDENTIFICATION

Sequence #	A. Description of Waste	B. EPA Hazardous Waste No (see instructions)	C. Handling Method	D. Amount of Waste	E. Unit of Measure
1	Waste 1,1,1 Trichloroethane	F002	S02	128	P
2	Waste 1,1,1 Trichloroethane	F002	T04	6890	P
3	Waste Perchlorethylene	F001	T04	6370	P
4	Hazardous Waste nos Waste Chlorinated Solvents	F002	T04	125156	P
5	Hazardous Waste nos Waste Chlorinated Solvent	F002	D84	7753	P
6	Hazardous Waste Liq. nos Hydrogen Peroxide + Phosphoric	D001	T04	4929	P
7	Waste Caustic Liquid Poisonous nos	D002	S01	666	P
8	cresols + Phenol		—	—	—
9					
10					
11					
12					

XV. COMMENTS (enter information by section number—see instructions)

Section XIV Explanations for Handling Codes - Col. C

Line 2, 3 + 4 - Solvent Recovery

Line 5 - Vendor Disposal by Incineration

Line 6 - Chemical Treatment

Tear out here

ENVIRONMENTAL PROTECTION AGENCY

Facility Biennial Hazardous Waste Report for 1983 (cont.)

This report is for the calendar year ending December 31, 1983.

IX. FACILITY'S EPA I.D. NO.

C T I D 9 9 0 6 7 2 1 0 8 1 [redacted]

XI. GENERATOR NAME (specify generator from whom all wastes on this page were received)

United Technologies Research Center ON-SITE ☐

X. GENERATOR'S EPA I.D. NO.

C T I D 0 9 5 5 3 2 1 3 1

XII. GENERATOR ADDRESS

Silver Lane
East Hartford, Ct 06108

XIII. TOTAL WASTE IN STORAGE ON DECEMBER 31, 1983 (complete this section only once for your facility)

S01 AMOUNT OF WASTE UOM | S02 AMOUNT OF WASTE UOM | S03 AMOUNT OF WASTE UOM | S04 AMOUNT OF WASTE UOM | S05 AMOUNT OF WASTE UOM

XIV. WASTE IDENTIFICATION

Sequence #	A. Description of Waste	B. EPA Hazardous Waste No. (see instructions)	C. Handling Method	D. Amount of Waste	E. Unit of Measure
1	Waste Trichloroethylene	F002	D84	498	P
2	Waste Trichloroethylene	F002	S02	520	P
3	Waste Perchloroethylene	F001	S02	1,624	P
4	Waste 1,1,1 Trichloroethane	F002	D84	1250	P
5	Waste Methyl Alcohol	D001	S02	502	P
6	Waste Solvents nos High + Low Flash Solvents	F002 D002	S02	1,947	P
7	Waste Solvents nos High + Low Flash Solvents	F002 D002	D84	2690	P
8	Hazardous Waste Solid nos Dry Aluminade	D003	D80	392	P
9	Waste Cyanide Sol nos Cu Sulfate / Formaldehyde + CN	F009	D84	3580	P
10	Waste Cyanide Sol nos Cu Sulfate / Formaldehyde + CN	F009	S02	932	P
11	Waste Hydrochloric Acid	D002	T04	918	P
12	Waste Sulfuric Acid Spent	D002	T04	247	P

XV. COMMENTS (enter information by section number—see instructions)

Section IX Explanation for Handling Code - Col. C
Lines 1, 4 & 7 Vendor Disposal by Incineration
Lines 11 & 12 - Chemical Treatment
Line 9 - Vendor Disposal by Chemical Treatment

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ENVIRONMENTAL PROTECTION AGENCY

Facility Biennial Hazardous Waste Report for 1983 (cont.)

This report is for the calendar year ending December 31, 1983.

IX. FACILITY'S EPA I.D. NO.

T/A C

[redacted] C T I D 0 9 9 0 6 7 2 0 8 1 / [redacted]

1 2 13 14 15

X. GENERATOR'S EPA I.D. NO.

[redacted] C T I D 0 9 5 5 3 2 1 3 1

16 28

XI. GENERATOR NAME (specify generator from whom all wastes on this page were received)

United Technologies Research Center

ON-SITE ☐

XII. GENERATOR ADDRESS

Silver Lane
East Hartford, Ct
06108

XIII. TOTAL WASTE IN STORAGE ON DECEMBER 31, 1983 (complete this section only once for your facility)

S01 AMOUNT OF WASTE UOM S02 AMOUNT OF WASTE UOM S03 AMOUNT OF WASTE UOM

S04 AMOUNT OF WASTE UOM S05 AMOUNT OF WASTE UOM

XIV. WASTE IDENTIFICATION

Sequence #	A. Description of Waste	B. EPA Hazardous Waste No (see instructions)	C. Handling Method	D. Amount of Waste	E. Unit of Measure
1	Waste Corrosive Liq nos Chemical Milling Sol.	D002	T04	858	P
2	Waste Acid Liq nos Mixed Acids	D002	T04	4716	P
3	Waste Acid Liq nos Hydrogen Peroxide-Copper	D002	T04	854	P
4					
5					
6					
7					
8					
9					
10					
11					
12					

XV. COMMENTS (enter information by section number—see instructions)

Section XIV Explanation for Handling Codes - Col C

Lines 1 thru 3 - Chemical Treatment

All Items on Pages 29 + 30 from UTRC was transported only on Company(ies) property and therefore unmanifested.

TABLE OF ACRONYMS

ACFM	Actual Cubic Feet per Minute
ACFS	Actual Cubic Feet per Second
ASTM	American Society Testing Materials
BTU	British Thermal Unit
CFR	Code of Federal Regulations
CWTP	Concentrated Waste Treatment Plant
DEP	Connecticut Department of Environmental Protection
DOT	U.S. Department of Transportation
DRE	Destruction Removal Efficiency
EPA	US Environmental Protection Agency
ID #	Identification Number
MCL	Materials Control Laboratory
MERL	Materials Engineering Research Laboratory
MMBTU	Million BTU
NPDES	National Pollutant Discharge Elimination System
OSHA	Occupational Safety and Health Administration
PM	Preventive Maintenance
PMC	Process Material Control Specifications
POHC	Primary Organic Hazardous Constituents
PS	Process Solution Specifications
P&W	Pratt & Whitney
RCRA	Resource Conservation and Recovery Act
TSDF	Treatment Storage Disposal Facility
UTC	United Technologies Corporation

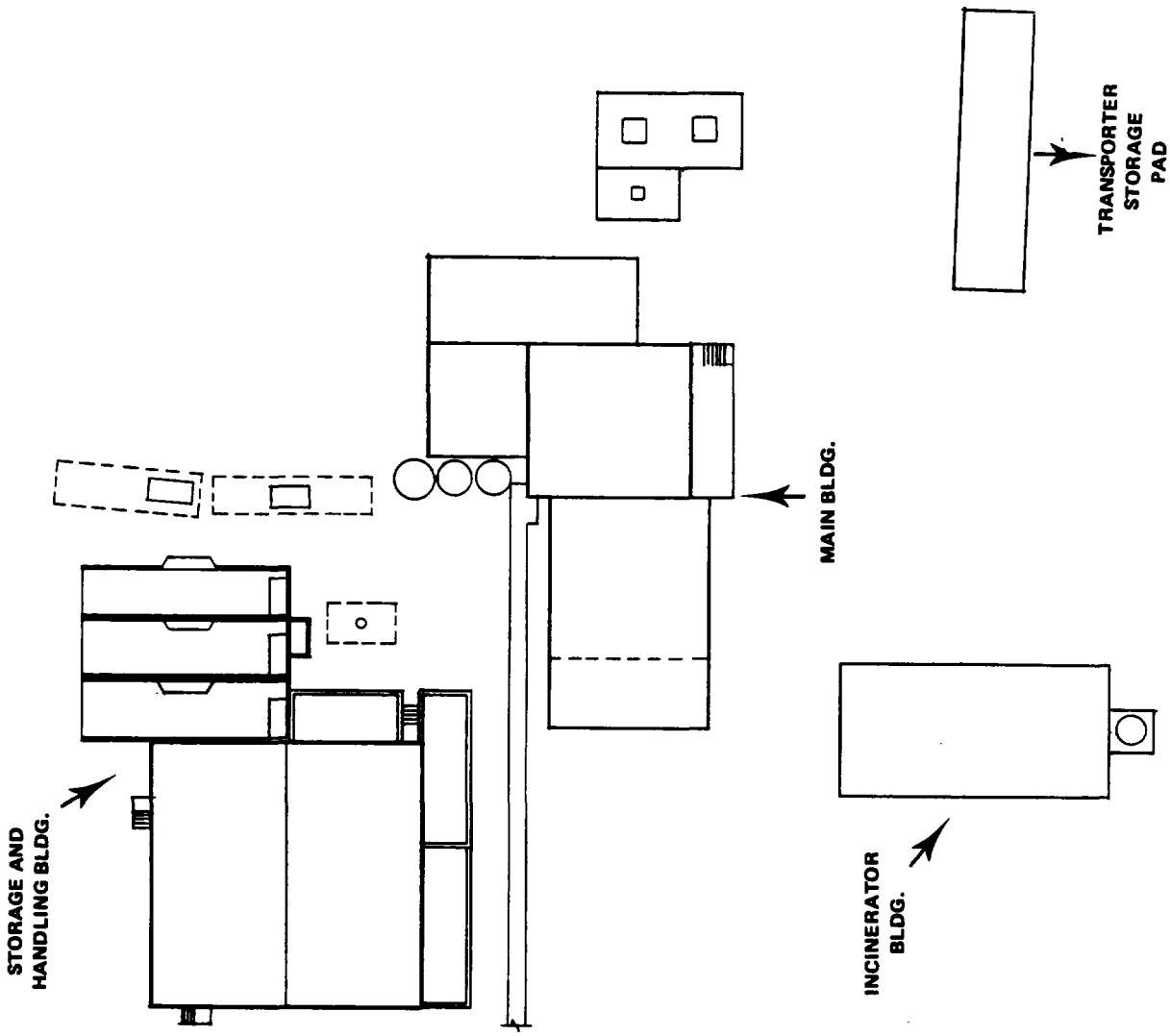
TABLE OF EXHIBITS


CONCENTRATED
WASTE
TREATMENT
PLANT
FACILITY LOCATION MAP

EXHIBIT A

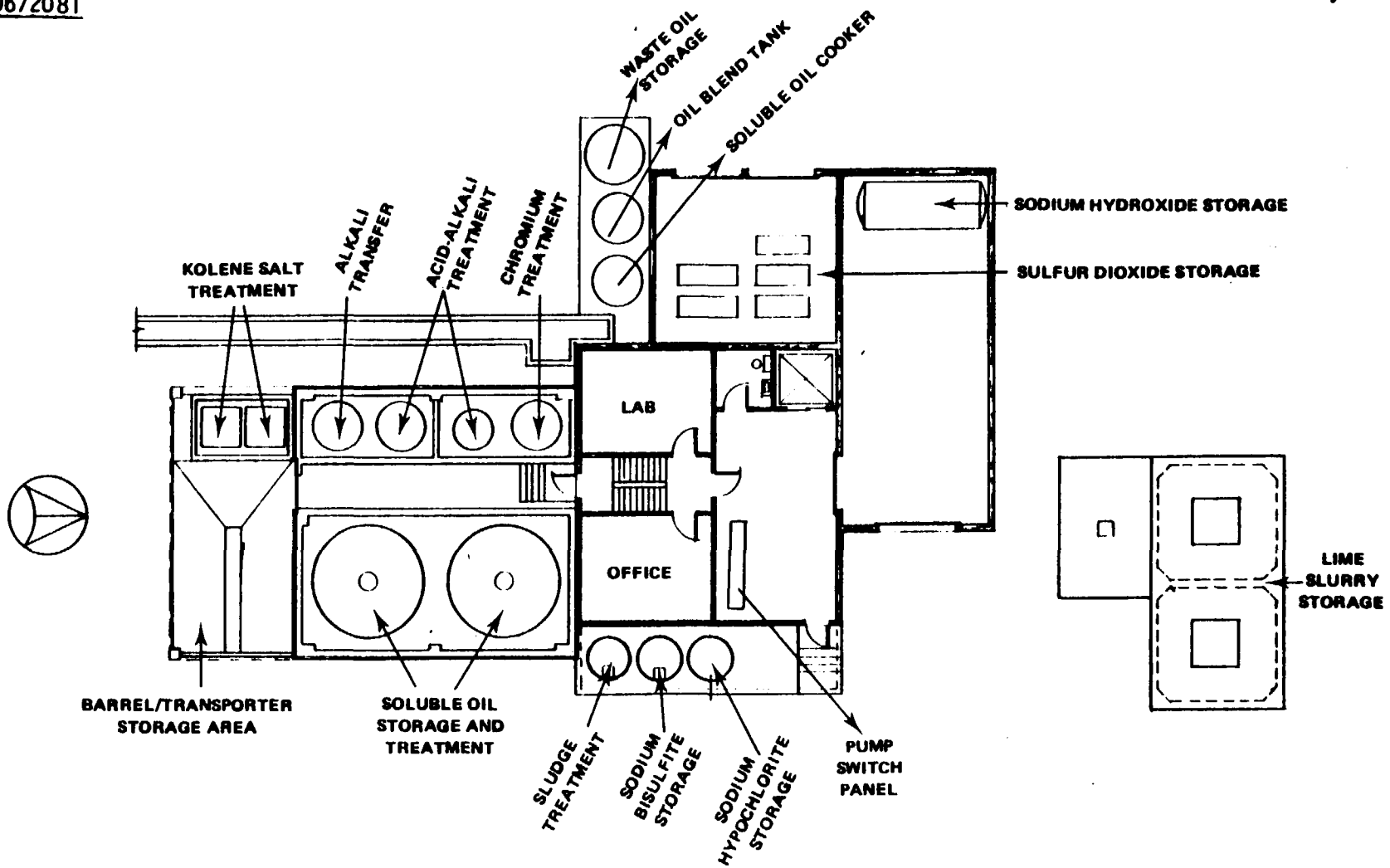
Exhibit B

CONCENTRATED WASTE TREATMENT PLANT LOCATION MAP



CONCENTRATED WASTE TREATMENT PLANT
MAIN BLDG.

RCRA Part B Permit Application
United Technologies
Pratt & Whitney Aircraft
CTD 990672081



Revised: December, 1982

EXHIBIT C

CONCENTRATED WASTE TREATMENT PLANT
STORAGE AND HANDLING BLDG.

RCRA Part B Permit Application
United Technologies
Pratt & Whitney Aircraft
CTD 990672081

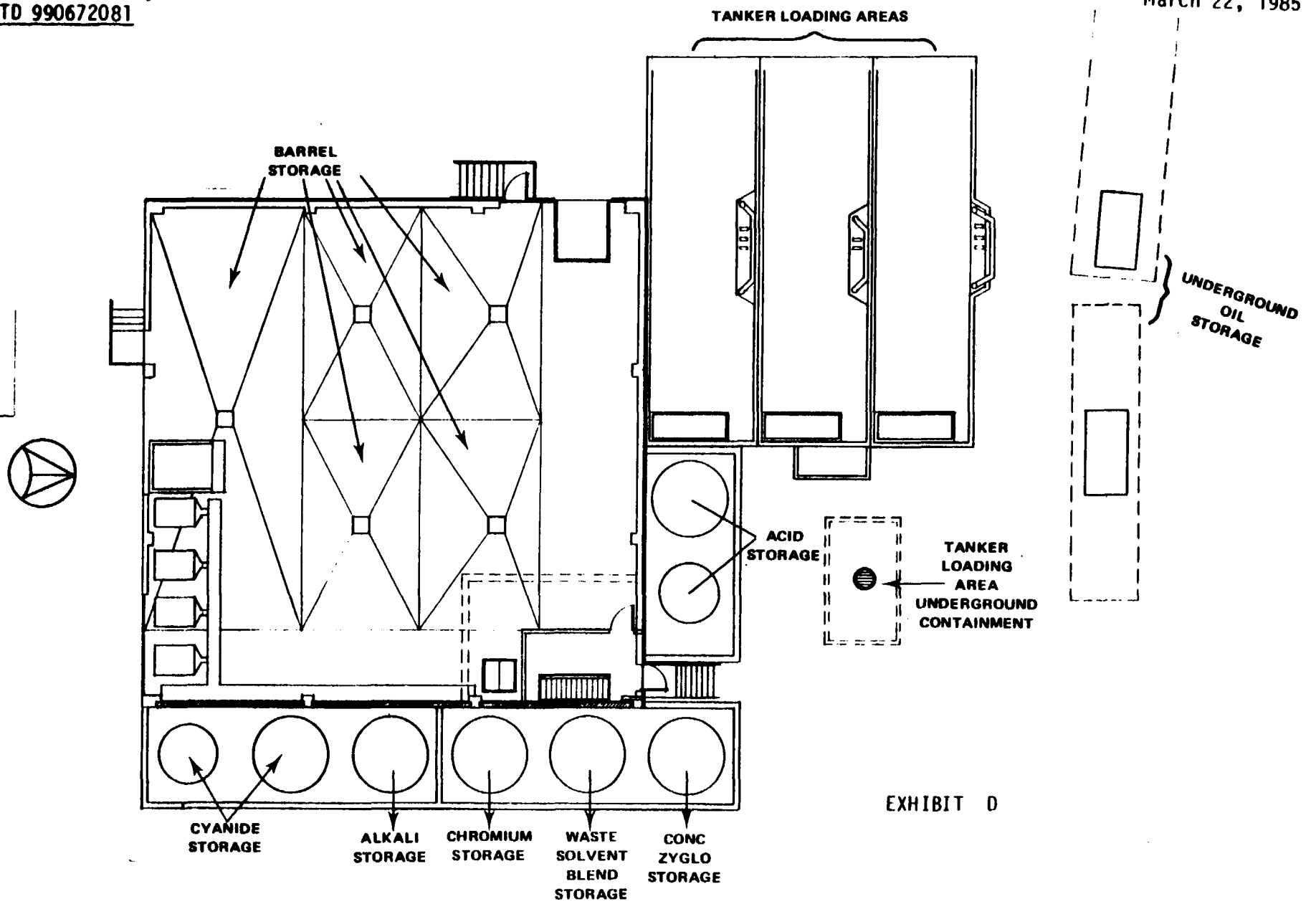


EXHIBIT D

INTERNAL WASTE MANIFEST

MANIFEST № 138216

GENERATOR COMPLETE THIS SECTION				
GENERATING DEPT. NUMBER	PLANT CODE	SUPERVISOR (PRINT AND SIGN)	PHONE	DATE
WASTE MATERIAL		PMC, PWA, PS #		
TRADE NAME		CHEMICAL NAME		
MANUFACTURER		ADDRESS		
NUMBER OF CONTAINERS	SIZE OF CONTAINER	TYPE (BARREL, BOTTLE, BOX, BAG, ETC.)		

TRANSPORTER COMPLETE THIS SECTION				
DATE PICKED UP	SHIFT PICKED UP	DELIVERED TO	DATE DELIVERED	DRIVER

PLANT ENGINEERING COMPLETE THIS SECTION				
NAME OF WASTE INSPECTOR	RECEIVED AT		CWTP RECEIVED WT. STORAGE LOC. CODE	CWTP RECEIVED WT. INITIALS
DATE AND SHIFT ACCEPTED	ITEM IDENT CODE	PLANT ENGINEERING RECEIVED WT.		
STORAGE LOCATION	TRANSFER #	LBS. GROSS		LBS. GROSS
WASTE MATERIAL IS ☐ ACCEPTED ☐ REJECTED (SEE BACK OF CARD)		LBS. TARE		LBS. TARE
		LBS. NET		LBS. NET

PWA FORM 6096 REV. 12-80 (FRONT)

EXHIBIT E

THE MINGES ENVIRONMENTAL LABORATORY

A division of The Minges Associates, Inc.
11 Avon Park North, P.O. Box 657, Avon, CT 06001
203-677-8309

Lawton S. Averill, Laboratory Director
Catherine M. Pintavalle, Chemist
Tara L. Vander Els, Chemist

REPORT ON LABORATORY EXAMINATIONS

Date: November 29, 1982

SAMPLE DATA: Pratt & Whitney Aircraft
Maintenance Building
Mail Stop 122-12
East Hartford, CT 06108

Collected By: Pratt & Whitney Aircraft

Att: Linda Biagioni

SAMPLE NO.	DESCRIPTION OF SAMPLE
112-55-6	Bag 24988.
112-55-6E	100 grams of Sample No. 112-55-6, mixed with distilled water and 400 ml. of 0.5N acetic acid to a total volume of 2000 ml., mixed for 24 hours, settled and filtered through 0.45 micron filter. Filtrate was tested.
112-55-17	Sample of nickel carbonate, B-29, 10-19-82.

LABORATORY FINDINGS: (milligrams per liter, mg/l, except as noted)

ANALYSIS FOR	SAMPLE NO. 112-55-6	112-55-6E		112-55-17	
pH of 10% Slurry	9.5			10.2	
Solids, Total percent	89.6			89.7	
Tests are percent of dry Weight					
Nickel	41.9			38.4	
Tests are mg/l in Filtrate					
Arsenic	less than 0.01				
Selenium	less than 0.01				
pH	7.0				

Note: Sample No. 112-55-6 appears to be nickel carbonate also. The higher percentage of nickel is most likely due to the formation of nickel oxide due to the release of carbon dioxide. This is supported by the drop in pH.

Lawton S. Averill
The Minges Environmental Laboratory

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Catherine M. Pintavalle, Chemist
Tara L. Vander Els, Chemist

REPORT ON LABORATORY EXAMINATIONS

To: CTD 990672081

Pratt & Whitney Aircraft
Maintenance Building
East Hartford, CT 06108

Date: October 20, 1982

SAMPLE DATA: Att: Linda Biagioni

Collected By: Pratt & Whitney Aircraft

SAMPLE NO.	DESCRIPTION OF SAMPLE
112-55-1	Sample of rubber received October 7, 1982.
112-55-1E	100 grams of Sample No. 112-55-1 mixed with distilled water and 1.0 ml. of 0.5N acetic acid to a total volume of 2000 ml., mixed for 24 hours, settled and filtered through 0.45 micron filter. Filtrate was tested.

LABORATORY FINDINGS: (milligrams per liter, mg/l, except as noted)

ANALYSIS FOR	SAMPLE NO. 112-55-1			SAMPLE NO. 112-55-1E	
pH of 10% Slurry	6.4		Tests are mg/l in Filtrate		
Solids, percent	99.7				
			Cyanide, Total	0.00	
			pH	4.8	

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Tara L. Vander Els, Chemist

REPORT ON LABORATORY EXAMINATIONS

Date: June 7, 1979

SAMPLE DATA: Pratt & Whitney Aircraft
Maintenance Building
400 Main Street
East Hartford, CT 06108
Att: Linda H. Satzuk

Collected By: Pratt & Whitney Aircraft

SAMPLE NO.	DESCRIPTION OF SAMPLE
500-4899	Sample of waste cyanide cleaning solution.

LABORATORY FINDINGS: (milligrams per liter, mg/l, except as noted)

ANALYSIS FOR	SAMPLE NO. 500-4899				
pH of 10% Solution	11.3				
Total Solids	190,000				
Metals					
Aluminum	42				
Cadmium	144				
Chromium Hexavalent	0.00				
Total	18				
Cobalt	20				
Copper	300				
Iron	400				
Nickel	5840				
Silver	130				
Zinc	11				

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Tara L. Vander Els, Chemist

REPORT ON LABORATORY EXAMINATIONS

Date: February 27, 1979

Pratt & Whitney Aircraft
Maintenance Bldg.
East Hartford, CT 06108

Att: Linda Satzuk

SAMPLE DATA:

Collected By: Pratt & Whitney Aircraft

SAMPLE NO.	DESCRIPTION OF SAMPLE
500-4491	Sample of 9015, wax after distillation collected February 7, 1979 from Dept. No. 32 Rec Crib.

LABORATORY FINDINGS:

(milligrams per liter, mg/l, except as noted)

ANALYSIS FOR	SAMPLE NO. 500-4491				
NSL Sample No.	29393				
Caloric Value	12,995 BTU/lb.				
Flash Point (Open)	240°F				
Percent Solvent (at 384°F)	33%				

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Lawton S. Averill, Laboratory Director
Catherine M. Pintavalle, Chemist
Tara L. Vander Els, Chemist

REPORT ON LABORATORY EXAMINATIONS

To: CT0990672081 Pratt & Whitney Aircraft
Maintenance Building
East Hartford, CT 06108

Date: July 10, 1981

SAMPLE DATA: Att: Linda Satzuk

Collected By:

SAMPLE NO.	DESCRIPTION OF SAMPLE
	Two samples of waste marked hydrazine picked up on July 6, 1981 at Pratt & Whitney Aircraft, East Hartford from Linda Satzuk.
500-8484	Sample labeled "Hydrazine waste 7-2-81", Dark.
500-8485	Sample labeled "Hydrazine waste 7-2-81", Light.

LABORATORY FINDINGS: (milligrams per liter, mg/l, except as noted)

ANALYSIS FOR	SAMPLE NO. 500-8484	500-8485			
pH, 10% solution	0.0	0.0			
Specific gravity grams/ml	1.818	1.798			
Sulfate as SO_4	1,620,000	1,520,000			
Sulfuric Acid, percent	91	88			
Hydrazine	None Detected	None Detected			

The Minges Environmental Laboratory

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Catherine M. Pintavalle, Chemist
Tara L. Vander Els, Chemist

RCRA Part B Permit Application
United Technologies Pratt & Whitney Aircraft

REPORT ON LABORATORY EXAMINATIONS

T&CD-880672081

Pratt & Whitney Aircraft
Maintenance Building
Mail Stop 122-12
East Hartford, CT 06108
Att: Linda Biagioni

Date: November 1, 1982

SAMPLE DATA: Collected By: Pratt & Whitney Aircraft

SAMPLE NO.	DESCRIPTION OF SAMPLE
112-55-2	Bag 25F

LABORATORY FINDINGS: (milligrams per liter, mg/l, except as noted)

ANALYSIS FOR	SAMPLE NO. 112-55-2				
pH of 10% Slurry	1.2				
Total Solids, percent	82.6				
Results as percent of Dry Weight					
Iron	34.9%				
Chloride	38.1%				
Note: It appears that this compound is almost entirely ferric chloride.					

Lawton S. Averill
The Minges Environmental Laboratory

CERTIFICATE OF ACHIEVEMENT

THIS IS TO CERTIFY THAT

Lawrence Lucia

HAS SATISFACTORILY COMPLETED

Handling Hazardous Waste 584.10T

6/12/81
Date

UNITED TECHNOLOGIES
Manufacturing Division

Instructor

Supervisor

EXHIBIT L

EXHIBIT M
JOB DESCRIPTION FOR THE
POSITION OF CHEMICAL ENGINEER

Perform technical and analytical work requiring the analysis and evaluation of chemical data to determine the feasibility of reclaiming industrial wastes, find cost effective methods of disposing of wastes and controlling air and water pollution and to ensure company compliance with applicable federal and state industrial waste laws and regulations.

Work from general statements of objectives to make studies and conduct investigations with a view toward cost reduction and avoidance and providing more effective control over effluents and wastes. Determine the scope of the assignment, extent of investigation required, and significant elements that should be considered in making studies and reaching conclusions. Make inspections, set up recording instruments to monitor effluents, run experiments, and search trade journals and similar publications to obtain data for analysis. When the study shows the need for new equipment, check manufacturer's catalogues and specifications, or contact suppliers to determine if something suitable is available commercially. If not, design equipment and work with consultants, engineering, and design groups on the more complicated equipment required to reclaim, control or dispose of chemical wastes and effluents. Obtain prices on equipment, and estimate the cost of labor and material required for installation or obtain estimates on more complicated work from trades groups and consultants. Investigate the feasibility of coating pipes, ducts, tanks and similar vessels with plastic and other synthetic coatings as protection against corrosive solutions and vapors. Prepare and submit to superiors reports on studies, including recommendations on feasibility cost of setting up and operating the process, and potential savings that may be realized.

Investigate problems arising from air and water pollution to determine what can be done to minimize or eliminate the condition. Analyze samples to identify contaminants, locate their source and determine whether effluents can be controlled economically or whether the process or operation can be changed to eliminate or minimize pollution. Run tests on new chemicals being considered for use in the plant to determine whether they can be disposed of safely and economically with existing equipment. If not, work with operating department supervisors to determine if suitable substitutes are available that present fewer waste-disposal problems. Establish specifications for chemicals used in disposing of wastes and set up testing procedures to control their quality. Establish, review and revise Pratt & Whitney standard procedures for the treatment, handling and disposal of industrial wastes. Attend conferences and read Federal Registers, Technical Journals and other papers to keep abreast of changing industrial waste laws and regulations and technological advances in the field of industrial waste reclamation and

Position of Chemical Engineer (Cont'd)

disposal. Set up Laboratory experiments to determine whether new techniques and methods are useful at Pratt & Whitney . Lend technical expertise and guidance to branch plant personnel engaged in the treatment, transportation or storage of industrial wastes.

Establish specifications and standards for vendor contracts relating to industrial waste treatment, disposal or transportation, determine vendors most qualified to do the work and monitor the work of vendor to ensure all specifications and terms of the contract are being met.

EXHIBIT N
JOB DESCRIPTION FOR THE
POSITION OF MECHANICAL ENGINEER, FACILITIES

Perform, direct and oversee engineering work on assigned major projects involving the design, installation and maintenance of plant facilities.

Work from general directions to direct the analysis of requirements and the design of facilities such as heating and ventilating, air conditioning and engine test fuel systems. Compile data and make studies of requirements to meet current needs and anticipated future expansion, and to determine the conditions such as population densities, heat transfer characteristics of building, health hazards and explosive mixture which must be considered in designing a system. Make analyses of existing systems to determine if they can be altered to handle additonal loads or to increase efficiency. Make cost estimates of alternative methods of doing the work on which important decisions involving large capital expenditures will be based.

Direct the preparation of detail drawings and the writing of specifications covering the work to be done. Plan and lay out work for designers assigned to projects and make up sketches to guide them in preparing detail drawings. Assign detail work to designers such as the less complicated analysis work and field work on the job, preparatory to formulating plans and specifications. Instruct them in the requirements of the work to be done and outline a course to follow in making analyses. Check work to make sure it is complete and accurate, and in compliance with applicable codes and standards. Review specifications to make sure that they adequately cover the work to be done, and are written clearly and concisely.

Establish quality standards for all phases of the work. Coordinate the work of the group with that of others working on a project in order to minimize the chances for error and to make sure the work is done efficiently, is completed as economically as possible, and in accordance with schedules. Contact vendors' representative to discuss projects and obtain data on suitable equipment available. Oversee field work on major projects to make sure that it is done in a workmanlike manner and all specifications and terms of the contract are being met. Call to attention of contractors' representatives substandard work and any deviations from specificaitons and contract terms detected in inspecting work, and work with them to make sure thy are corrected.

Keep up with the state of the art in his field and constantly review new techniques, developments and equipment for possible application to the requirements of his work.

EXHIBIT O
JOB DESCRIPTION FOR THE
POSITION OF LEAD FACILITIES ENGINEER

Plan and assign work, oversee activities, and work with a group engaged in performing architectural, mechanical, or structural engineering and design work on major projects involving construction and installation of plant facilities and production support equipment, or a group engaged in performing similar work on production test facilities.

Work from generally defined objectives to direct the analysis of requirements and the planning involved in preparing preliminary plans, and estimates, working drawings, and specifications for various types of mechanical and structural installation. Have studies made to determine if existing air, water, gas, ventilating, and other systems have the capacity to handle load requirements of new structures or additional equipment. If not, determine additional pumps, compressors, and other primary equipment required, where they should be located, and the routing of mains and feeders to tie them into existing networks. Have other studies made of materials and equipment specifications, and other performance data to design the structures and systems best suited for the particular use. Determine if suitable equipment is available commercially, or if it must be designed to meet a peculiar requirement. Supervise the development of engineering and cost data for various alternative proposals on which important decisions involving large capital expenditures will be based. Provide technical information and advice which should be considered in reaching a decision on whether or not to proceed with the proposed work. Work with Purchasing Department in selecting vendors who have the capital, equipment, and skills required to do the work to bid on the job. Review bids and recommend the contractors and vendors that are better qualified to handle the work.

Establish quality standards for all phases of the work. Oversee field work on major projects to be sure it is done in a workmanlike manner, and all specifications and terms of the contract are being met. Call to attention of contractors, substandard work, and any deviations from specifications and contract terms, and work with them to make sure they are corrected.

Supervise engineers, designers, and draftsmen in the unit, and instruct them in the proper methods and procedures to follow. Follow up to make sure work is being done properly, complies with applicable building, fire, and safety codes, and that specifications are written clearly. Assist individuals with difficulties encountered in their work. Apply the Corporate Equal Employment Opportunity Policy and implement effective affirmative action to assist in attainment of the goals and objectives of the facility. Maintain discipline within the unit, taking action as required to make sure instructions, and company and departmental rules and regulations are carried out. Recommend disciplinary action when warranted. Make effective recommendations concerning changes of status and performance rating for employees supervised.

Position of Lead Facilities Engineer (Cont'd)

In the Test Engineering unit, perform work similar to that described above, including noise abatement, aerodynamics, and stress analyses and evaluations, associated with systems and equipment required to test engines.

EXHIBIT P
JOB DESCRIPTION FOR THE
POSITION OF CHEMICAL WASTE TREATMENT PLANT OPERATOR

Treat concentrated waste chemicals, waste oils, contaminated rinse and other process water, and other waste material to neutralize pollutants and prepare materials for disposal.

Work from generally defined procedures in processing a wide variety of wastes. Check paper work accompanying incoming acids, alkalis and similar wastes to determine whether the type can be mixed with those already on hand, or whether they should be treated separately or used in treating other wastes. Dissolve dry chemicals in water or other wastes in receiving tank to prepare them for treatment. Be alert in dumping wastes into receiving tank to detect any indications of unforeseen reactions, and take action promptly to avoid accidents. Dilute strong acids to reduce hazards in processing or handling. Periodically test samples of treated wastes and continue adding chemicals until wastes have been rendered harmless. Periodically check flash point of oil in receiving tank and add higher flash point oils as required to prepare it for use as fuel.

Operate a fully automated, flow-through liquid waste treatment facility to remove contaminants from water used in industrial processes. Periodically test samples of treated water to make sure automatic sensing and control equipment is working properly. Mix chemical solutions used in the treatment of wastes, open clogged chemical feed lines, and perform other such work to keep the facilities running. At the pretreatment plant, where pollutants are neutralized, test samples of incoming wastes to detect unusually heavy concentrations of pollutants. Notify foreman of any that are found so a check of the area from which they are coming can be made for possible leaks or spills. At the Colt Street plant, where waste solids and oil are removed, test samples of incoming wastes to make sure pretreatment equipment is working properly. Monitor the process (flocculation) which removes solids, and test samples of clean water to make sure automatic equipment is holding pH at proper level. Operate vacuum filter to separate sludge from water and dry it.

Take action promptly in emergencies, such as when leaks occur in chlorine and sulphur dioxide systems, to clear the area, stop the flow and locate leaks. Make temporary repairs and notify proper repair group to have permanent repairs made. Replace valves, gaskets and short sections of pipe and tubing, and perform other similar types of repair work. Check linings on transport and processing tanks for evidence of cracks and other indications of deterioration. Remove debris from around oil skimmers on Willow Brook Pond, lubricate bearings and perform other preventive maintenance work on skimmers and dam, and adjust dam as necessary to control level of water in pond.

EXHIBIT Q
JOB DESCRIPTION FOR THE
POSITION OF FOREMAN, MAINTENANCE

Responsible for supervision of a group of employees carrying out one or more duties including carpentry, millwright, pipefitting, painting, sheet metal fabrication and welding while engaged in construction or maintenance work on plant facilities.

Plan over-all activities of the group, supervise the work, establish priorities for carrying out assignments, and coordinate the work of the group with that of other trade groups to meet schedules and do the work efficiently. Work with other supervisors to encourage an exchange of ideas and make the department more effective. Assist subordinates in solving unusual problems encountered in their work such as determining best method of by-passing obstructions, making emergency repairs, or interpreting complicated drawings and specifications. Review findings and recommendations of subordinates and determine action to be taken.

Recommend changes in manpower to meet changing needs considering the type of work to be done and the skills required to do it efficiently. Plan a course of action to develop the skills required to meet current and anticipated future needs, actively encourage employees to take advantage of training programs and other opportunities to qualify for advancement, and apply Corporate Equal Employment Opportunity Policy to assist in the attainment of company goals and objectives. Determine duties which make up a work assignment for individuals in group and the number to be classified on each job to do the available work economically. Review various records pertaining to the group, investigate areas where performance could be improved, and institute or recommend changes in methods and procedures, and other changes, to improve efficiency and reduce costs. Explain company policies and regulations to subordinates and recommend hire, promotion, transfer and other changes in status of employees. Establish standards and rate individual's performance. Enforce rules and regulations, recommending disciplinary action when warranted. Review and make prompt disposition of employees' grievances.

Investigate difficulties encountered in performing construction, renovation, shop rearrangements and maintenance work. Review findings with engineers, vendors' representatives, contractors and others as required and recommend changes in structural or mechanical selection or methods of doing the work to overcome difficulty. Keep informed of technical developments and determine the feasibility of adapting new ideas, methods, and techniques for use at Pratt & Whitney. Compile data on benefits to be derived, the costs involved in implementing new methods or purchasing new equipment, draw conclusions and make recommendations in accordance with findings.

EXHIBIT R
JOB DESCRIPTION FOR THE
POSITION OF GENERAL FOREMAN, MAINTENANCE

Responsible for general supervision of a group of employees carrying out one or more duties including carpentry, millwright, pipefitting, painting, sheet metal fabrication and welding while engaged in construction or maintenance work on plant facilities.

Review projected activity schedules and work loads and keep foreman apprised of changes which affect their unit. Discuss with foreman manpower requirements to meet changing needs, and determine the number of men and type of skills required to do the work efficiently and in time to meet completion dates. Review status reports to make sure that work is progressing satisfactorily. Coordinate the work of the different trades with that of other groups on the shift, and with the efforts of the other shifts, to assure a smoothly operating department.

Institute procedures within the framework of existing policies to guide foreman in carrying out their responsibilities. Assist subordinates in solving problems such as in establishing uniform standards of performance for employees supervised and in solving unusual construction or maintenance problems encountered in their work. Review subordinates' recommendations for solving problems and determine what action should be taken. Establish goals, objectives and standards of performance for subordinates and rate and appraise individuals in accordance with manner in which they perform their work. Explain company policies and regulations to subordinates, and keep them apprised of any changes in administrative practices and procedures which affect their work. Apply the Corporate Equal Employment Opportunity Policy and implement effective affirmative action to assist in attainment of the goals and objectives of the facility. Recommend hire, promotion, transfer, and other changes in status of employees, and disciplinary action when warranted. Review and make prompt disposition of employees grievances.

Work with various groups to find solutions to a wide variety of problems connected with construction or maintenance work. Investigate technical difficulties encountered in performing work and determine best course of action to follow to avoid delays. Attend meetings at which proposed work programs are reviewed and discussed, determine if equipment, manpower and skills are available to handle the work, and exchange ideas on how best to coordinate the work of the different trades to do the work efficiently. Review work where estimated time required to do the work appears excessive, or design presents unusual construction or fabrication problems and contribute ideas on changes in design and methods in order to better utilize available equipment and manpower to keep costs to a minimum. Review various work reports and data pertaining to the performance of the group, investigate areas where improvements could be made to make group more effective, and institute or recommend changes in practices for greater efficiency.

EXHIBIT S
JOB DESCRIPTION FOR THE
POSITION OF MAINTENANCE MECHANIC
(GRADE 6)

Perform minor maintenance work on service systems, equipment and buildings, and assist in moving light weight equipment and furniture.

Work from drawings, service manuals and other similar information to perform the routine repair work and preventive maintenance checks involved in maintaining plumbing, heating and ventilating equipment, and industrial machinery such as sanitary facilities, exhaust fans, unit heaters and small pumps. Answer trouble calls where the symptoms are indicative of the cause and make repairs or replace the malfunctioning unit. Typical examples of the type of work performed include: lubricate bearings; adjust belt tension; replace faucet washers and packing; unplug sanitary sewers; and replace hoses on machines. Replace small threaded pipe and fittings including unions and valves to repair leaks and other problems in steam, water, air and other service lines. Overhaul equipment such as small single stage centrifugal pumps, exhaust blowers and check valves. Disassemble equipment, check condition of parts such as bearings, impellers, and seals, and refer questionable parts to other for decision. Rebuild the unit, make adjustments, and perform other work required to return it to proper working order.

Assist in rigging hoists or using small crane to get unit heaters, blowers, pumps and the like down from overhead or up out of pits. Operate small crane, forklift truck, crawler tractor and other similar equipment to assist in moving small machine tools, benches, tanks, surface plates and other equipment. Repair shop partitioning, bumpers and other wood-fabricated items used in the shop. Scrape, wire brush and wash surfaces in preparations for painting and apply ready mixed paints with brush, roller or pad, where the primary purpose is preservation.

Operate electrolyte treatment plant following established procedures to maintain proper solution strength and remove sludge. Make periodic checks such as pH and specific gravity and add materials as required to maintain proper balance and concentration of electrolyte. Mix filter material, prepare vacuum filter and circulate electrolyte through filter to remove sludge.

EXHIBIT T
JOB DESCRIPTION FOR THE
POSITION OF MAINTENANCE MECHANIC
(GRADE 4)

Perform general maintenance work on buildings and industrial equipment.

Work from drawings, service manuals and other similar information to perform all but the most complicated work associated with each of the trades involved to maintain plumbing and industrial machinery such as sanitary and pollution control facilities, furnaces, exhaust fans, pumps and other equipment associated with various areas including test, heat treat, welding and plating. Answer trouble calls, check equipment to determine the nature and extent of the trouble, and make repairs or replace the malfunctioning unit. Typical examples of the type of work performed include: replacing belts, pulleys and bearings; rebrick furnaces; replace igniters and pilot lights on gas fired equipment, changing engine mount hardware in test cells; alignment of shafts where limits are not close; changing filters and replacing valves and fittings. Repair leaks in steam, water, air and other service lines; replace threaded, fiber glass, plastic, copper, and other pipe; apply insulation to repaired sections, and replace damaged insulation; repair furnaces and box ovens; repair door operating mechanisms and hardware; replace fittings and short sections of duct in exhaust systems; and other similar work. Overhaul equipment such as pumps, hoists, chain falls, hydraulic and air cylinders and valves. Disassemble equipment, check condition of bearings, impellers, seats, hoist brakes and gears, and other parts, and determine whether to replace or recondition parts. Rebuild the unit, fit parts, make adjustments, and perform other work required to return it to proper working order. Perform preventive maintenance checks on the more complicated test associated equipment.

Rig hoists or use fork lift truck or small crane to get equipment such as blowers and pumps down from overhead or up out of pits. May occasionally operate crawler tractor to move items. Repair partitioning, bumpers, work platforms, furniture and other wood fabricated items. Replace ceiling and floor tile.

EXHIBIT U
JOB DESCRIPTION FOR THE
POSITION OF INDUSTRIAL WASTE ANALYST

Complete responsibility for an industrial waste record keeping system which maintains accurate and up-to-the-minute data on waste production and disposal, to be used for a variety of purposes, the foremost being to demonstrate Company compliance with local, State, and Federal industrial waste laws and regulations. Provide assistance to East Hartford and branch plant personnel in packaging, shipping, and disposing of hazardous waste.

A computerized record keeping system will be used with a CRT for entering, extracting, and changing data. Data pertaining to industrial waste treatment operations of all Pratt & Whitney plants will be reviewed, investigated and corrected where necessary, and entered. Be responsible for a variety of paper work relating to industrial waste generation and treatment. This includes responsibility for an EPA Manifest System which involves distribution of up to seven copies of each Manifest within specific time intervals, re-calculating, correcting and explaining manifest discrepancies in writing on Manifest before sending the required copy to the State of Connecticut, and following up on the return of Manifest copies to PWA within the required time. Other paperwork includes review of interanl waste manifests, certificates of transfer, and internal and external certificates of disposal, for correct computer codes, mathematical computations, descriptions, etc, and make necessary corrections. Also review weekly, monthly and annual computer generated reports for accuracy and correct where necessary. Resolve all paperwork errors and recognize and report serious and/or recurring paperwork errors to superior. Train East Hartford and branch plant personnel in entering information on all required forms and certificates, maintain computer stored descriptive data to be used by East Hartford and branch plant personnel in completing forms, and assist these personnel in understanding and utilizing computer generated reports. Ensure that waste inventory on computer agrees with physical inventory.

Utilize CRT and computer generated reports to extract various information for immediate waste treatment decisions, quarterly reports, government required environmental reports, reports to Plant Engineering Accounting Group which form the basis for back-charging branch plants for waste disposal, and for paying State of Connecticut Hazardous Waste Tax, and various other reports as required. Work with personnel of Pratt & Whitney Information Systems in correcting programming errors and creating newly required programs and reports.

Approve and co-ordinate waste shipments from branch plants to East Hartford and schedule transportation of the waste with Pratt & Whitney Outside Trucking. Communicate with outside Waste Disposal Contractors to schedule pickup and disposal of waste from East Hartford and branch plants, and coordinate waste pickups with disposal contractors and waste treatment foreman. This requires understanding of vendor contracts and preparation of

Position of Industrial Waste Analyst (Cont'd)

Pratt & Whitney shipping orders and different EPA Waste Manifests for the several states where disposal is accomplished, coordination of internal manifests with shipments, verification of receipt of completed EPA manifests, vendor certificate of disposal, and verification of vendor invoice against shipment and certificate of disposal.

Under guidance and with approval of Chemical Engineer, direct personnel regarding proper methods of packaging, labeling, and transporting of a variety of industrial waste, with special attention given to compatability of waste. Be familiar with DOT and EPA waste transport and disposal regulations. Review Federal Regulations and other material to extract information pertaining to industrial waste laws and regulations, and establish and maintain efficient filing system for such items as waste analyses, manifests and disposal certificates, and reference material on industrial waste laws and regulations.

US EPA New England
RCRA Document Management System
Image Target Sheet

RDMS Document ID # 2449

Facility Name: PRATT & WHITNEY - MAIN STREET

Facility ID#: CTD990672081

Phase Classification: R-1B

Purpose of Target Sheet:

[X] Oversized (in Site File) **[ ] Oversized (in Map Drawer)**

[ ] Page(s) Missing (Please Specify Below)

[ ] Privileged **[ ] Other (Provide Purpose Below)**

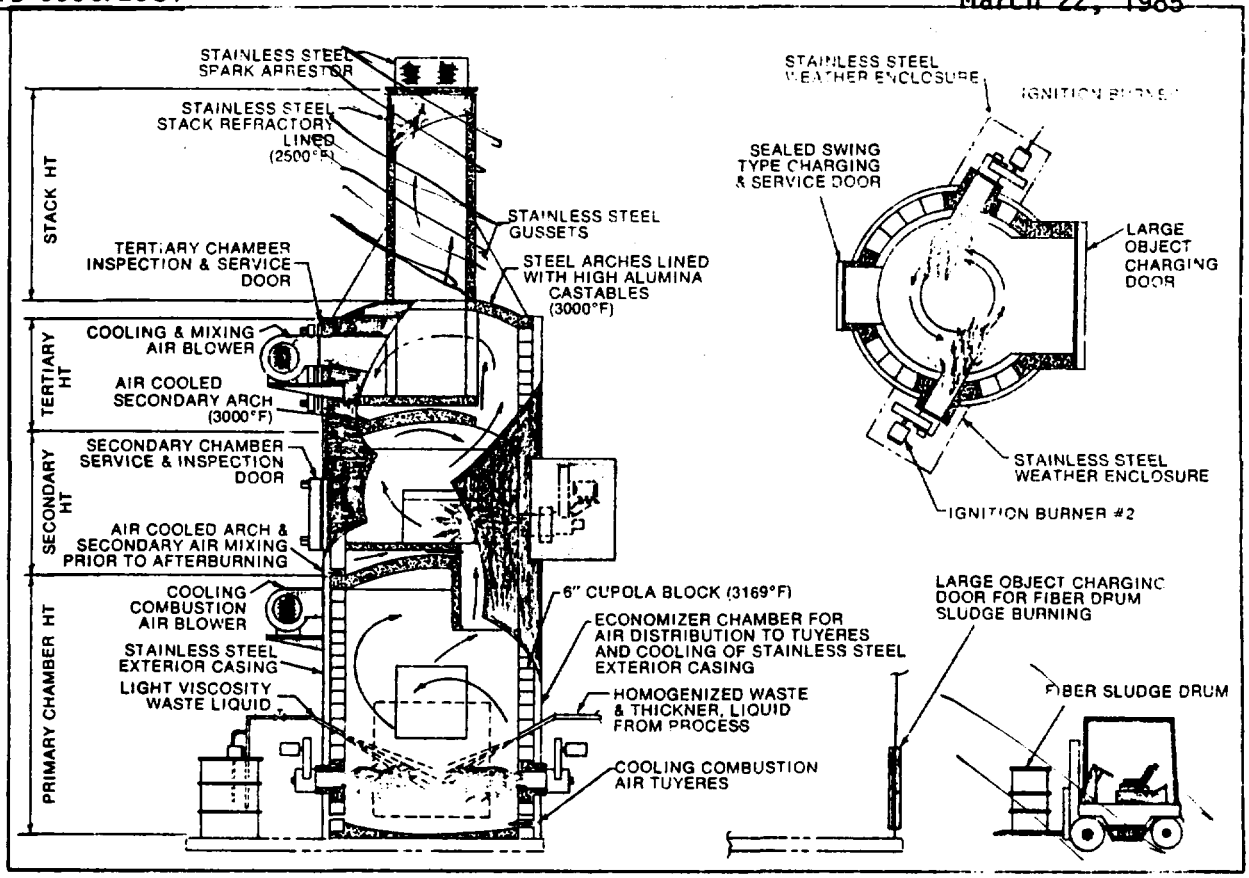
Description of Oversized Material, if applicable:

EXHIBIT V: DRAWING PE-MC-891-E: C\VTP PIPING SCHEMATIC

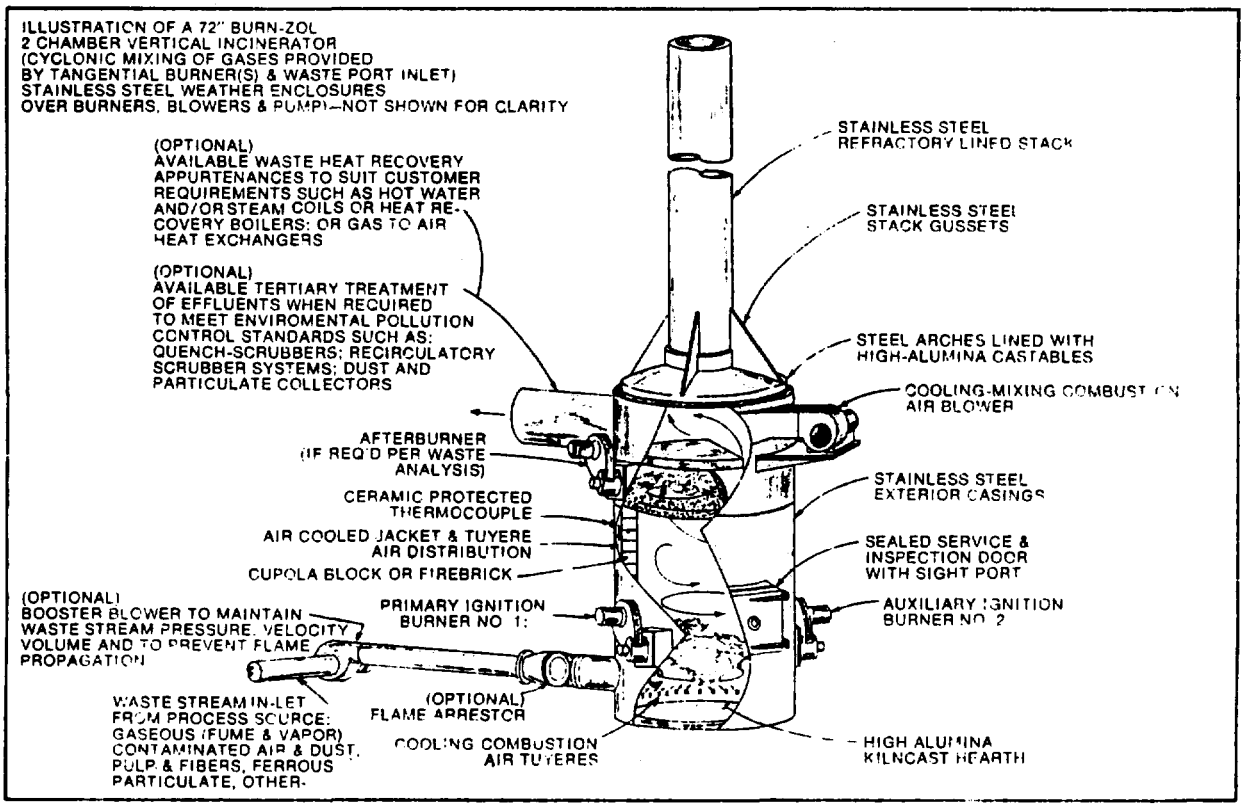
[ ] Map **[ ] Photograph** **[X] Other (Specify Below)**

FLOW CHART

*** Please Contact the EPA New England RCRA Records Center to View This Document ***



LIQUID WASTE AND SLUDGE INCINERATOR SYSTEMS



VAPOR AND GASEOUS WASTE INCINERATOR

INCINERATOR SPECIFICATIONS

GENERAL:
The incinerator shall be a patented vertical self-supporting unit suitable for charging through the wall if required, and designed to withstand 100 m.p.h. winds. The incinerator and stack external casings, charging hopper-chute and enclosure, burners, and motor enclosures, shall be constructed of stainless steel for weather protection and maintenance-free operation. The outer shell of the incinerator shall be entirely air-cooled. All motors shall be rated at 50, 60 Hertz (Voltage as available) and have fuse protection and shall be controlled by magnetic starter for operation of the proper electric service.

CHAMBER CLASSIFICATIONS & FUNCTIONS:
Primary: The primary combustion chamber, for partial burning and conversion of combustible material to gases.
Secondary: A secondary combustion chamber for complete gas and particle combustion where the primary effluent shall be thoroughly mixed with warm fresh air and then pass through the secondary flame envelope and sweep around and upward through this temperature controlled chamber to the next.
Tertiary: The third chamber will receive the hot effluent from the second stage where warm fresh air will again be introduced and thoroughly mixed in this chamber by means of baffles or deflectors which cause this chamber to act in a manner resembling a cyclone separator, then the effluent is discharged to the refractory lined stack. The incinerator combustion chambers and mixing ports shall provide appropriate volumes and velocities to maintain a gas and particle retention time of two seconds, minimum.

CASING CONSTRUCTION:
Incinerator steel casings shall be double-wall construction, having a minimum 14 GA stainless steel (type 409) outer casing and a minimum 11 GA carbon steel inner casing.

Double-wall construction shall be adequately sealed to form a forced air distribution jacket for external skin cooling and pretempered combustion air to tuyeres and secondary mixing ports. The overall design shall minimize thermal stresses. The casings shall be structurally reinforced and designed to adequately support the burners, blowers, stack, refractories, all other components and the entire unit will be self-supporting.

ANCHORS:
The anchors shall be formed from appropriate alloy steel to withstand temperatures encountered, and of sufficient strength to support the refractory with a safety factor of 4, based on the elastic limit of temperatures encountered.

REFRACTORY & CASTABLES:
The refractory shall be 3200° F. cupola block firebrick with 3000 high alumina castables refractory around the charging door, cleanout doors, burner and blower ports. The hearth, air-cooled chamber arches, and tunnels will be monolithic castings of 3000° F. high strength refractory in accord with the specifications. The refractory shall be not less than 6" thick in the combustion zones. The breeching stack lining shall be not less than 3" thick of insulated castable refractory 3000° F. temperature rating.

SWING TYPE CHARGING DOOR:
Door and frame shall be fabricated from 11 GA thick minimum stainless steel plate and shall be lined with high alumina castable refractory. Door latch shall be a crank-screw design to provide a positive seal when tightened. Door closures shall be gasketed with high temperature resistant-woven asbestos.

PRIMARY COMBUSTION CHAMBER:
1. The primary combustion chamber shall be sized to easily accommodate the hourly combustion rate. All openings will be so located and constructed to prevent gases or liquids from leaking out.
2. Combustion air orifices (tuyeres) shall supply controlled air volumes and pressures from the forced air blower which incorporates modulating dampers. Operating pressures and location of the tuyeres shall prevent waste materials from lodging in areas where they will not be consumed during the burning process.

CHARGING HOPPER:
The charging hopper-chute (optional) shall be fabricated of stainless steel and capable of holding solid, semi-solid and liquid waste in an integral manner that prevents contact of the waste on other charging mechanisms. The hopper-chute shall have provisions for a water and disinfectant spray to function automatically during each charge cycle, thus providing a sanitary disposal system.

The charging door shall consist of an inner fire door (refractory lined), a powered hopper-chute of stainless steel, and an outer door which are mechanically interlocked in such a manner that the primary combustion chamber is sealed from the ambient air by the inner fire door while the outer door is open. The inner door shall open only after the outer door is closed. The door closures shall effect a seal of sufficient integrity to assure that no gases pervade the ambient air.

The combustion chamber shall operate at a negative air pressure when the inner fire door is opened to prevent injury to the hopper-chute, or operator, and to prevent the escape of gases. The fire door shall be lined as before mentioned and this door and all other door closures of the incinerator shall be gasketed with high temperature resistant-woven asbestos. The temperature of the door handles shall be low enough to permit the operator to open the door without gloves or other protective devices.

RAM CHARGER:
The ram charger shall be fabricated from steel plate with structural steel reinforcement to adequately support integral hydraulic system and additional loading from charged waste.

Optional stainless steel may be provided in wetted areas with provisions for a water and disinfectant spray to function automatically during each charge cycle, thus providing a sanitary disposal system.

The ram charger shall be equipped with a hydraulic operated loading door to seal ram hopper after each loading and a sealed guillotine firedoor lined with high alumina castable refractory.

Optional steel cart(s) and cart loading mechanism may be provided to facilitate waste handling from remote areas into ram hopper.

Automatic charge cycle shall commence on a single push button actuation. Interlocks shall be provided to allow primary burners to modulate to low fire and combustion air dampers to close to decreases excess air into primary chambers. Hopper loading door shall close and the incinerator firedoor shall open. The charging ram shall advance the load into the incinerator and then automatically reverse. When the ram head clears the incinerator door it shall stop while the firedoor closes and then fully retracts as the hopper loading door opens. Should its charging cycle not be completed within the allotted time, the ram shall fully retract and an audible alarm shall be sounded. Upon completion of charge cycle, primary burners and controlled air resume normal operation.

MODULATING BURNER:
Two fully modulating oil or gas fired burners with a turn-down ratio of 20 to 1 shall be provided in the primary combustion chamber. The burners shall provide primary heat at start-up and at all times when the temperature in this chamber falls below preset levels. Burners shall be so located that the flame is directed tangentially to the inner chamber wall, complementing each other so as to cause a swirling action of the gases, while impinging on the waste material as directly as possible. The burners shall be electrically ignited with a gas pilot and regulated by a set point controller adjustable from 0° to 2500° F. in increments of not greater than 100° F. The controller shall be activated by a thermocouple located in the upper one-third of the combustion chamber. Burner controls shall incorporate FM approved components where applicable and the entire fuel train shall be designed in accord with IRI recommended practice for oil fired furnaces, including ultraviolet flame scanners for flame failure safety shutoff for the burners and pilots and preignition purging control.

LIQUID WASTE INJECTION SYSTEMS:
The primary combustion chamber shall be equipped with air-cooled nozzle located in the proper position for liquid waste injection. This adapter shall provide for disassembly and removal of stainless steel nozzle (externally of the chamber) and have the ability to interchange nozzle sizes to accommodate various liquid characteristics.

SECONDARY COMBUSTION CHAMBER:
The secondary combustion chamber shall be provided with an electrically ignited gas pilot, oil fired burner designed to maintain a continuous minimum temperature of 1800° F. The burner shall be regulated by a set-point indicator controller adjustable from 0° F. to 2500° F. The indicator shall be capable of indicating temperatures to 2500° F. with graduations on the scale not greater than 100° F. The controller shall be activated by a thermocouple located in the upper one-third of the chamber. This burner shall have the same turn-down ratio, FM or IRI approved components and fuel train and safety systems as the primary combustion chamber burners.

TERTIARY CHAMBER:
The stack breechway shall extend down into the tertiary chamber and rest on the arch-hearth. The chamber shall be so designed that the secondary chamber effluent will discharge into the periphery of this chamber and be caused to swirl around the chamber by means of baffles or deflectors before exhausting into the stack breechway which shall be at axis of the chamber.

INSPECTION-SERVICE DOOR:
Each chamber shall be provided with inspection-service doors which are accessibly located and permit the complete removal of residue waste material and personnel entry for inspection. Doors and frames shall be fabricated from stainless steel plate of approved thickness and shall be lined with the same refractory as the combustion chambers. Door closures shall be gasketed with high temperature resistant-woven asbestos.

CONTROL PANEL:
1. The control panel shall be in a weather and dust-proof stainless steel enclosure which is remotely located and mounted on a wall in the charging room adjacent to the charging door.
2. A weather and dust-proof stainless steel terminal junction enclosure shall be mounted on the incinerator and prewired to the various components of the unit.
3. The control panel and terminal box shall be wired with color coded or numbered conductors for identification to aid in circuit identification. Burn-Zol will provide a circuit schematic showing all electrical components and their connections.
4. The control panel shall include but is not limited to the following components:
   a. Three (3) magnetic starters for burner blower motors.
      Two (2) magnetic starters for forced air blower motors.
      One (1) magnetic starter for hydraulic power pak.
      Three (3) flame supervisory relays for burners.
      Two (2) temperature controllers (0°-2500° F.) (chromel-alumel) potentiometric with second limit set point
      Two (2) Line voltage/24-V transformers for modulating motors.
      Solid state control relays and timers.
      Audible alarm horn, indicating lights, control switches and meters.

STACK SAMPLING EQUIPMENT OPTIONAL
1. Two stainless steel stack sampling ports shall be provided at eight to ten stack ID's above the breechway port and 90° apart from each other. These sampling ports shall be 3" I.D. mounted flush to the interior surface of the stack with standard pipe flanges on the outside provided with cover plates.
2. OSHA approved ladder, cage and platform shall be provided, fabricated of stainless steel with an aluminum grating on the platform. The platform shall be capable of supporting three people and 200 lbs. of equipment and be about three-feet wide. The ladder well should not be located under or between the sampling ports. The ports shall be between 4 and 5 feet above the platform grating.
3. A 115-V, AC, 20 amp weatherproof outlet shall be provided not less than eight inches above the platform grating.

CERTIFICATION REQUIREMENTS:
A. Burn-Zol shall submit a certified copy of a laboratory test giving evidence that the incinerator is capable of destroying bacterial spores.
B. Burn-Zol does certify that the incinerator shall reduce Type 0 through 4 waste by a minimum of 95% after four hours of being charged at rated capacity and normal operation.

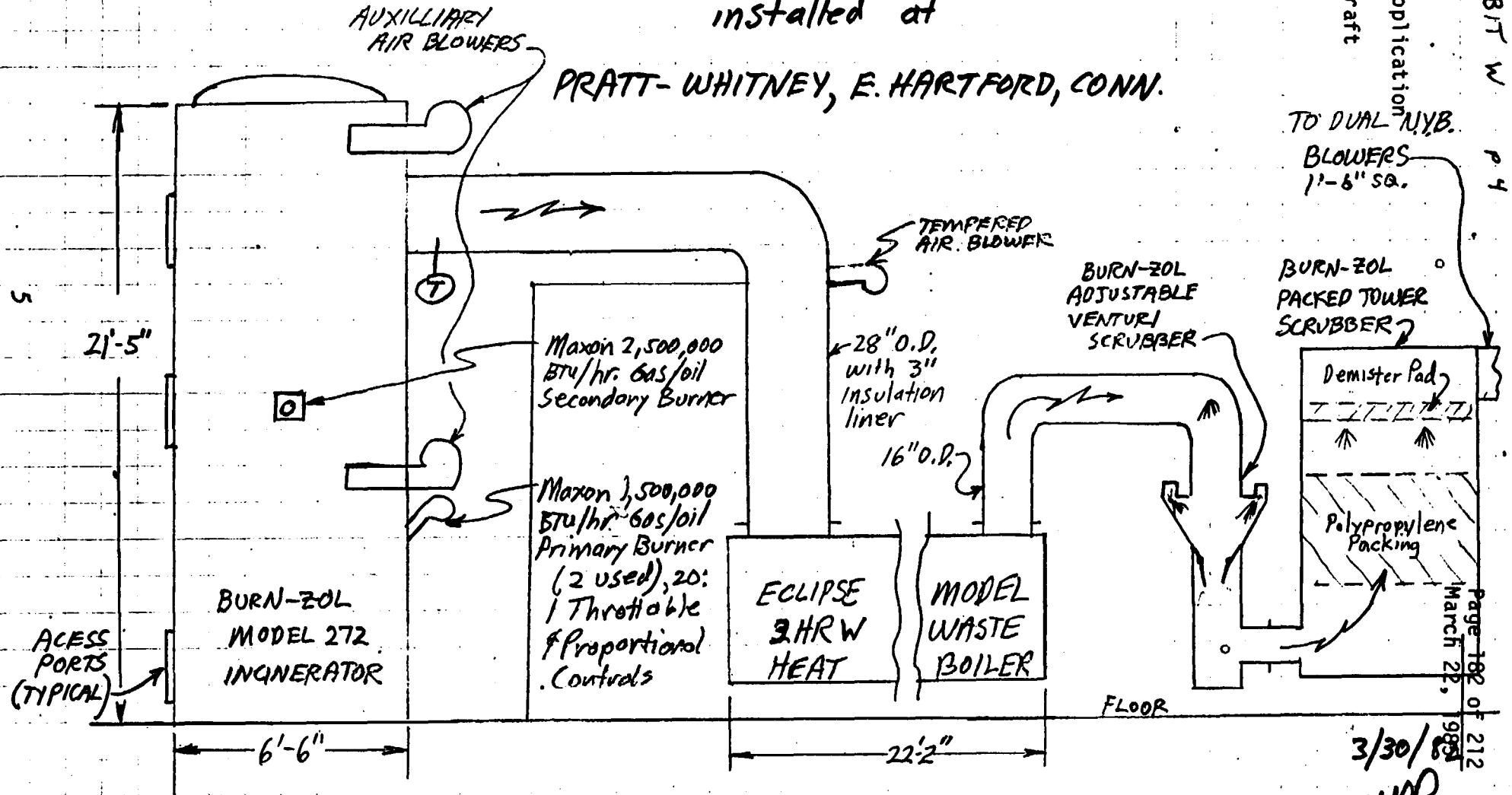
DEMONSTRATION AND INSTRUCTIONS:
A. Burn-Zol shall start up and operate the completed installation demonstrating that all systems are in proper operating condition as approved. A complete cycle shall be demonstrated using waste provided.
B. Burn-Zol shall provide three (3) sets of operating instructions and Manuals as well as a minimum of four hours operating instructions to equipment operators.

EXHIBIT W P 4

HAZARDOUS WASTE INCINERATION SYSTEM

installed at

PRATT-WHITNEY, E. HARTFORD, CONN.



NOTE: A 1,200 ACFM COMBUSTION AIR BLOWER FEEDS THE 3 INCINERATOR BURNERS.

NOTE: SEE FOLLOWING PAGE FOR MORE INFO

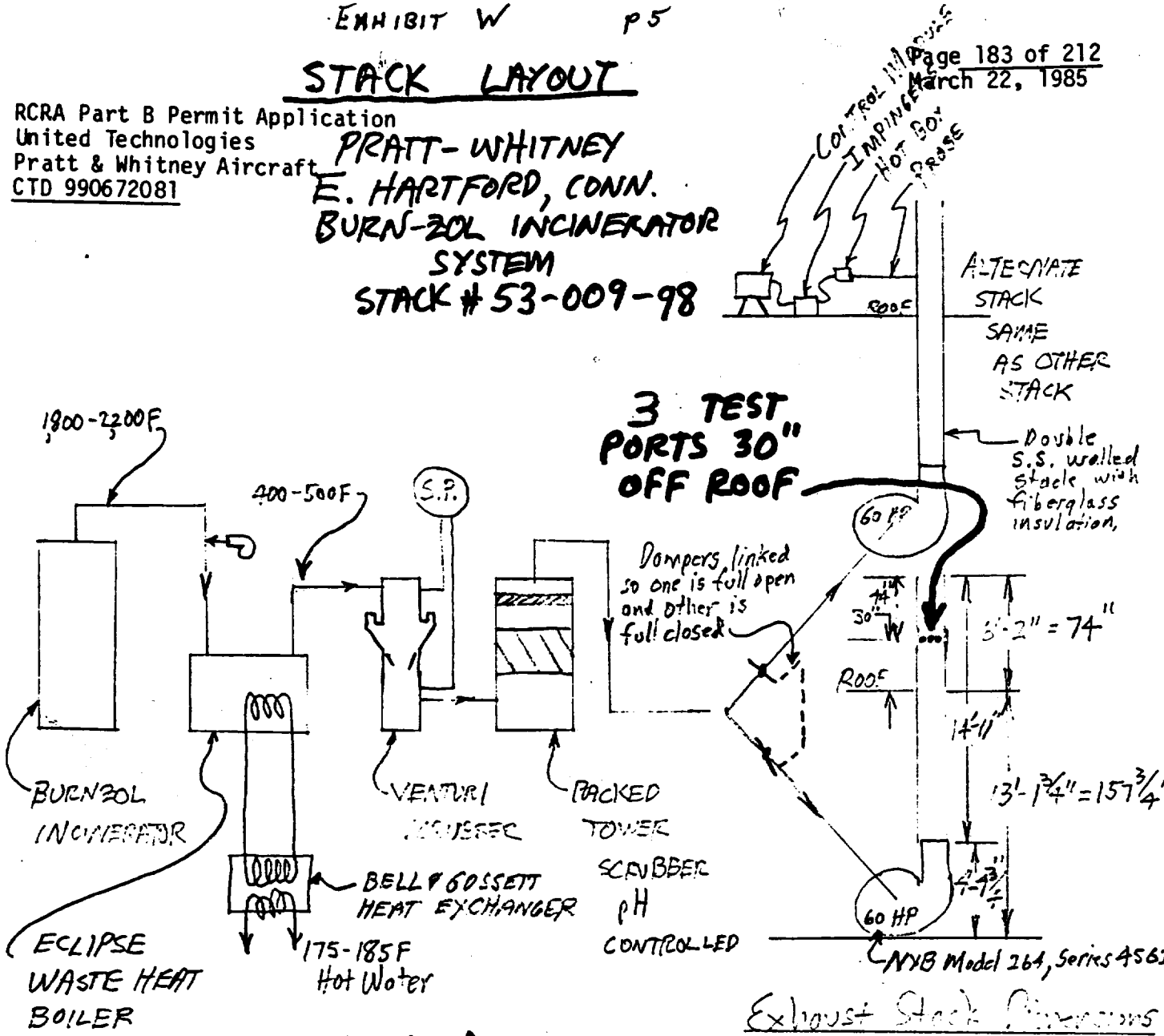
(T) TEMP. SENSOR FOR RECORDER

3/30/85 WBR

STACK LAYOUT

RCRA Part B Permit Application
United Technologies
Pratt & Whitney Aircraft
CTD 990672081

PRATT-WHITNEY
E. HARTFORD, CONN.
BURN-ZOL INCINERATOR SYSTEM
STACK # 53-009-98



Exhaust Stack Dimensions

$11\frac{13}{16}" \times 14\frac{1}{2}"$

$11.81 \times 14.5 = 171.2 \square"$

$1.19 \square'$

Equival. Dia. $= \frac{2LW}{L+W}$

$= \frac{2 \times 14.5 \times 11.81}{14.5 + 11.81} = 13.0$

Total Stack Distance
14'-11" = 179"
179/13 = 13.8 Equiv. Dias.

1) Upstream Distance

Actual Equival. Dia.
$12'-5\frac{11}{13}" = 149/13 = 11.5$ Equiv. Dia.

2) Downstream Distance

Actual Equival. Dia.
30"/13" = 2.3 Equiv. Dia.

SKETCH # 204
Rev. C Rev. A
Rev. B

WBR 8/28/8

A. RICHARD LOMBARDI, P.E.
PRESIDENT
THOMAS D. LEE
DIRECTOR
FREDERICK O. A. ALMQUIST, P.E.
SANITARY ENGINEER
H. F. SACHS
BACTERIOLOGIST

I. LAIRD NEWELL, P.E.
CONSULTANT

THE NEWLANDS SANITARY LABORATORY

HENRY SOUTHER LABORATORIES, PROPRIETOR
SANITARY, CHEMICAL AND BACTERIOLOGICAL INVESTIGATIONS
24 TOBEY ROAD
BLOOMFIELD, CONNECTICUT 06002
TEL. (203) 242-6291

WATER SUPPLY AND PURIFICATION
SEWAGE & INDUSTRIAL WASTE DISPOSAL
DESIGN-SUPERVISION-VALUATION
CHEMICAL & BIOLOGICAL LABORATORIES
AIR POLLUTION STUDIES

RCRA Part B Permit Application
United Technologies
Pratt & Whitney Aircraft
CTD 990672081

October 12, 1981

Minges Associates, Inc.
16 Avon Park North
Avon, Connecticut 06001

Attention: Mr. Lawton Averill

Gentlemen:

We have the following to report on the samples submitted to this laboratory on September 11, 1981.

Sample No.	710852-A	710852-B
Mark:	Wax - Solvent Mixture Reported 9-11-81	
	Solvent Supernatant	Wax
Nickel (Ni)	57.7 ppm	51.0 ppm
Iron (Fe)	--	654. ppm
Aluminum (Al)	--	166. ppm

Very truly yours,

THE NEWLANDS SANITARY LABORATORY

Thomas D Lee

Thomas D. Lee
Laboratory Director

RECEIVED
THE MINGES ASSOC. INC.
OCT 15 1981

TDL:D

Sample No. 710852
RCRA Part B Permit Application
Mark: United Technologies Sample of Wax-Solvent
Pratt & Whitney Aircraft Mixture
CTD 990672081

Polychlorinated Biphenyls	less than	10	ppb
Pesticides:			
Endrin	less than	10	ppb
Lindane	less than	10	ppb
Methoxychlor	less than	10	ppb
Toxaphene	less than	10	ppb
Herbicides (Chlorophenoxys):			
2,4-D	less than	10	ppb
2,4,5-TP Silvex	less than	10	ppb
Purgeable Organics:			
1,1,2,2 Tetrachloroethylene		57.8	ppm
1,1,1 Trichloroethane		16.0	ppm
Aromatics (1R)		None Detected	
Water (Fisher Titration)		96%	

Note: The above tests were performed on the supernatant portion of the sample. The supernatant represents 25% of the total volume of the sample.

THE NEWLANDS SANITARY LABORATORY
BLOOMFIELD, CT. 06002

EXHIBIT X P-3

RCRA Part B Permit Application
Hazardous Waste Management Facility
Pratt & Whitney Aircraft
EPA ID No. CTD 067 [illegible]

THE MINGES ENVIRONMENTAL LABORATORY
A division of The Minges Associates, Inc.
11 Avon Park North, Avon, CT 06001
New: March 22, 1985 203-677-8309
Lawton S. Averill, Laboratory Director
Catherine M. Pintavalle, Chemist
Tara L. Vander Els, Chemist

REPORT ON LABORATORY EXAMINATIONS

To Client: Pratt & Whitney Aircraft
Maintenance Bldg. - Mail Stop 122-12
East Hartford, CT 06108

Date: November 15, 1983

Att: W. Chudzik

SAMPLE DATA: Collected By: Pratt & Whitney Aircraft

SAMPLE NO.	DESCRIPTION OF SAMPLE
112-55-64	Sample labeled "Cyanide" and received October 7, 1983

LABORATORY FINDINGS: (milligrams per liter, mg/l, except as noted)

ANALYSIS FOR	SAMPLE NO. 112-55-64				
Cyanide Total	21,300				
Metals					
Aluminum	51				
Cadmium	6020				
Chromium, Total	4.3				
Copper	940				
Nickel	286				
Zinc	11				
Oil and Grease	48				

Lawton S. Averill
The Minges Environmental Laboratory

THE NEWLANDS SANITARY LABORATORY

HENRY SOUTHER LABORATORIES, PROPRIETOR
SANITARY, CHEMICAL AND BACTERIOLOGICAL INVESTIGATIONS
24 TOBEY ROAD
BLOOMFIELD, CONNECTICUT 06002
TEL. (203) 242-6291

A. RICHARD SOUTHER, CHEMIST
HENRY SOUTHER, JR., DIRECTOR
FREDERICK O. A. ALMQUIST, P.E., SANITARY ENGINEER
H. F. SACHS, BACTERIOLOGIST
I. LAIRD NEWELL, P.E., CONSULTANT

WATER SUPPLY AND PURIFICATION
SEWAGE & INDUSTRIAL WASTE DISPOSAL
DESIGN-SUPERVISION-VALUATION
CHEMICAL & BIOLOGICAL LABORATORIES
AIR POLLUTION STUDIES

December 19, 1983

Minges Associates, Inc.
16 Avon Park North
Avon, Conn. 06001

Attn: Mr. Lawton Averill

Gentlemen:

We have the following to report on the sample submitted to this laboratory on October 7, 1983.

Sample No.	387J3
Mark	Solid/liquid sample 112-55-62
Infrared	
Solid	parrafin wax
Liquid	Water 85% Perchloroethylene 15%
Total Organic Carbon	
Solid	64.8%
Liquid	2.21%

Visual Examination
This material is approximately 20% liquid and 80% solid.

Very truly yours,

THE NEWLANDS SANITARY LABORATORY

Thomas D. Lee

Thomas D. Lee
Laboratory Director

DL/cas

THOMAS D. LEE
DIRECTOR
FREDERICK O. A. ALMQUIST, P.E.
SANITARY ENGINEER
H. F. SACKS
BACTERIOLOGIST
I. LAIRD NEWELL, P.E.
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24 TOBEY ROAD
BLOOMFIELD, CONNECTICUT 06002
TEL. (203) 242-6291

December 19, 1983

Minges Associates, Inc.
16 Avon Park North
Avon, Conn. 06001

Attn: Mr.Lawton Averill

Gentlemen:

We have the following to report on the sample submitted to this laboratory on December 8,1983.

Sample No.	351L3
Mark	Liquid sample 2% Cyanide 112-55-64

PURGEABLE ORGANICS:

Methylene Chloride	less than 100 ppb
1,1 Dichloroethylene	less than 100 ppb
1,1 Dichloroethane	less than 100 ppb
t-1,2 Dichloroethylene	less than 100 ppb
Chloroform	less than 100 ppb
1,2 Dichloroethane	less than 100 ppb
Bromodichloromethane	less than 100 ppb
1,1,1 Trichloroethane	less than 100 ppb
Carbon Tetrachloride	less than 100 ppb
1,1,2 Trichloroethylene	less than 100 ppb
Chlorodibromomethane	less than 100 ppb
Bromoform	less than 100 ppb
1,1,2,2 Tetrachloroethylene	less than 100 ppb

Very truly yours,
THE NEWLANDS SANITARY LABORATORY

Thomas D. Lee
Laboratory Director

TDL/cas

THE NEWLANDS SANITARY LABORATORY

A. RICHARD LOCKWOOD, P.E.
PRESIDENT
THOMAS B. LEE
DIRECTOR
FREDERICK O. A. ALMQUIST, P.E.
SANITARY ENGINEER
H. F. SACHS
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WATER SUPPLY AND PURIFICATION
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AIR POLLUTION STUDIES

December 19, 1983

Minges Associates, Inc.
16 Avon Park North
Avon, Conn. 06001

Attn: Mr. Lawton Averill

Gentlemen:

We have the following to report on the sample submitted to this laboratory on December 8, 1983.

Sample No.	351L3
Mark	Liquid sample 2% Cyanide 112-55-64
otal Organic Halides (TOX)	less than 10 ppb
Total Organic Carbon (TOC)	38.82 gms/Liter

Very truly yours,

THE NEWLANDS SANITARY LABORATORY

Thomas D. Lee

Thomas D. Lee
Laboratory Director

TDL/cas

OPERATION MANUAL

INCINERATOR MONITORING SYSTEM

FOR

NEW WAY INDUSTRIES, INC.

CHARLTON TECHNOLOGY, INC.
P. O. BOX 26818
SAN DIEGO, CA 92126

1.0 DESCRIPTION OF THE SYSTEM

This manual describes an Incinerator Monitoring System designed for continuously monitoring carbon monoxide (CO) and oxygen (O_2). The system will provide a visual indication of CO and O_2 concentrations and adjustable alarms for indication of high CO concentration or low O_2 concentration. The system is housed in a weatherproof enclosure for outdoor installation.

1.1 CARBON MONOXIDE ANALYZER

CO is determined by an Infrared Industries Model 7100/7200 analyzer. This analyzer, employing a non-dispersive infrared analysis technique, provides a meter output with a range of 0 to 5%. Two alarm setpoints (LOW, HIGH) can be adjusted in the field to actuate at any concentration on a given range.

1.2 OXYGEN ANALYZER

O_2 is determined by a modified Jay Tec oxygen analyzer. This analyzer, employing a polarographic analysis technique, provides a range of 0 to 25% O_2. The alarm setpoint can be adjusted in the field to actuate at any concentration on the range.

1.3 ALARM SYSTEM

Simpson 3324 meter relays are provided for indicating the CO concentration and O_2 concentrations as well as high and low alarms for each parameter. Alarm levels can be adjusted in the field. DPDT relay contacts are available for both high and low alarms.

1.4 SAMPLING SYSTEM

Figure 1 shows the flow diagram for the sampling system. A Thomas Teflon-lined diaphragm-type sampling pump draws sample gas from the incinerator exhaust stack through a customer-provided probe and sample line. The sample passes through a filter/trap (T) where

particulates and any entrained water droplets are removed. A portion of the sample gas is continually purged through the trap to the drain/vent. If condensate builds up in the trap it is automatically dumped to the drain/vent.

NOTE: This sampling system is designed for temperatures up to 300°F with moderate particulate loading and sample dewpoints essentially at ambient or lower. If particulate loading is heavy and if dewpoints significantly higher than ambient occur it may be necessary to employ a separate sample conditioning system (such as the Charlton Technology DRYSTAK Model SC-10) upstream of the monitoring system.

Sample gas passing through the trap passes through a 3-way valve (V-2) and then through flowmeters FI-1 and FI-2 to the analyzers. The valve is employed for periodic introduction of zero and span gas from customer-supplied calibration gas cylinders.

2.0 INSTALLATION OF THE SYSTEM

2.1 LOCATION OF THE SYSTEM

A Hoffman sheet metal enclosure (24" wide by 20" high by 16" deep) has been provided for outdoor installation of the carbon monoxide/ oxygen monitoring system. Although the enclosure is weatherproof, several precautions should be taken in the selection of a location for the monitoring system. For the protection of the analyzers, the area should be free from excessive dust or humidity and should not be subjected to shock or vibration other than normal plant vibration. The system should be installed in a non-hazardous area. A shade or shield should be provided to protect the enclosure from direct sunlight or from any source of radiant heat.

2.2 MOUNTING OF SYSTEM ENCLOSURE

The enclosure should be wall-mounted with the hinge of the enclosure on the left side. The enclosure should be mounted high enough to provide convenient viewing of the analyzer meters and to permit servicing of the system. Sufficient clearance should be provided at the front of the enclosure to open the door. Sufficient clearance should be provided on the left-hand side of the enclsoure to permit pneumatic and electrical connections. It is recommended that the bottom of the enclosure be mounted at least 36" above the floor and that at least 30" of clearance be provided on the left-hand side, the front, and the right-hand side.

2.3 ELECTRICAL INTERCONNECTIONS

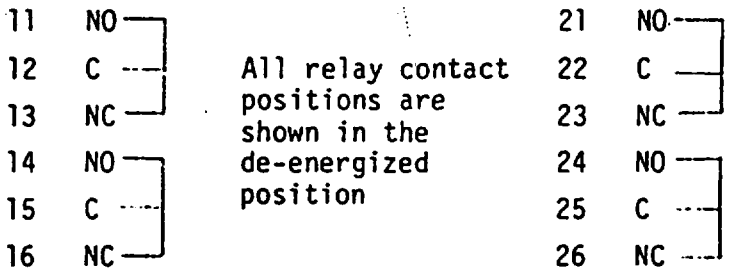
Two conduit hubs are provided on the left-hand side of the enclosure for making external electrical connections. The lower hub is for power connection to the system. The upper conduit hub provides access to the system for alarm wiring to the control room.

It is recommended that a junction box with main power switch be installed near the enclosure with a terminal board for making interconnections. It also may be desirable to provide alarm disable switches to permit the operator to conduct service on the monitoring system without actuating the alarms in the control room. Such a switch in the "disable" position would maintain the closed contact in the alarm circuit regardless of the position of the alarm contacts in the alarm relay.

Power connects to the system through the lower conduit hub. It is recommended that 16 gauge wire be used. The lower terminal board accepts the power as follows:

	TB 1
120 VAC HIGH	PIN 1
120 VAC LOW	PIN
Ground	Terminal Board holddown screw

The alarm interconnections to the control room are made through the upper conduit hub. The alarm wires connect directly to the back terminal boards on the meter relays. Both are identical and have the following pin locations:



The relays for HIGH alarm de-energize when the pointer goes above the setpoint. The relays for LOW alarm de-energize when the pointer goes below the setpoint.

2.4 SAMPLE INTERCONNECTIONS

Figure 1 shows the sample flow system for the incinerator monitoring system. Make sample interconnections at the four stainless steel fittings located at the left-hand side of the enclosure:

SAMPLE VENT	Connect to vent with no backpressure
SAMPLE IN	Connect 1/4" sample line with Gyrolok flareless tube fitting (provided). Use Teflon or 316 stainless steel tubing. Plastic tubing can be used provided it can withstand system temperatures and is inert to components of the sample.
DRAIN/VENT	Should be connected to a vented drain since both liquid condensate and sample bypass will flow from this fitting.
CAL	Connect calibration gas (zero gas and span gas) at this fitting as required for periodic calibration.

3.0 INITIAL START UP OF THE SYSTEM

3.1 TEMPERATURE CONTROL SYSTEM

For best performance, both of the analyzers should be protected from extreme temperature changes. Infrared Industries recommends operation of the analyzer at temperatures from 0°C to 50°C (122°F) and states that operating the analyzer at 60°C (140°F) for extended periods of time may shorten component life and will increase the drift by a factor of three.

The CO/O_2 system is provided with a temperature-controlled electric heater. In cold weather the system can readily be kept within the operating range of the analyzers. The enclosure is not air-conditioned, however, and during hot weather the system relies upon the heater fan to maintain circulation and to dissipate heat through louvers in the side of the enclosure. During extremely hot weather there may be times when the temperature of the enclosure may exceed the recommended high temperature of 45°C.

Start up the temperature control system as follows:

1. Turn the fan switch (push button on upper panel) to the ON position. This will start the fan which draws in ambient air through the left-hand louver and exhausts through the right-hand louver. The fan also circulates air within the enclosure.

   For cold-weather operation (expected ambients below 40°F) actuate the heating circuit as follows:

2. Depress the "750" pushbutton on the heater case to actuate the 750 watt heating circuit.

3. After selecting the desired control temperature, place your hand over the outlet of the heater and turn the thermostat control knob (located on the left wall just in front of the heater) in a clockwise direction until hot air comes out of the outlet. Estimate the proper thermostat setting, then close the door of the enclosure and observe the thermometer on the front panel. Readjust as required until the control temperature is within the desired range.

3.2 SAMPLING SYSTEM

After all sample interconnections have been made, start up the sampling system as follows:

1. Place the CAL/SAMPLE switch in the SAMPLE position.
2. Turn on the sample pump.
3. Adjust the flow rates to the CO analyzer and the O_2 analyzer to 2 liters per minute.

   NOTE: The sampling system is now in operation. Sample gas is flowing both to the vent and to the drain/vent. There is always a flow of sample to the drain/vent even when the valve is in the CAL position. This continually flushes entrained water to the drain.

3.3 INFRARED INDUSTRIES MODEL 7100/7200 CO ANALYZER

After reviewing the IRI instruction manual, turn the power switch on the front panel of the analyzer to the ON (up) position. The meter needle will swing toward the (+) direction, deflect toward the (-) direction, and then gradually return to 0. Let the analyzer warm up at least 30 minutes at operating temperature, then proceed to Section 4.0 of this manual for calibration.

3.4 JAYTEC O_2 ANALYZER

Turn the power switch on the front panel of the analyzer to the ON position. The meter will deflect toward the (+) direction before returning to the proper concentration reading. Let the analyzer warm up at least 30 minutes then proceed to Section 4.0 of this manual for calibration.

3.5 SIMPSON MODEL 3324 METER RELAYS

Each Simpson meter has adjustable alarm setpoints for low and high alarms. Set the alarm pointers for each parameter to the desired low end or high alarm concentration.

4.0 CALIBRATION OF THE SYSTEM

Customer-supplied calibration gas cylinders will be required for calibration of the incinerator monitoring system. Certified gas mixtures containing known concentrations of O_2 and CO are available from local suppliers (e.g. Airco, Matheson).

The primary purpose of the incinerator monitoring system, however, is to monitor the combustion performance. Therefore, extreme accuracy of calibration will not be required. For this reason we recommend a relatively simple calibration scheme which will require only one standard gas concentration and a supply of instrument air.

GAS	FUNCTION
CO in Nitrogen	Span Gas for CO Analyzer
	Zero Gas for Oxygen Analyzer
Instrument Air	Span Gas for CO Analyzer
	Span Gas for Oxygen Analyzer

4.1 CALIBRATION OF THE CARBON MONOXIDE ANALYZER

Detailed calibration instructions are included in the Infrared Industries operating manual. For preliminary calibration of the analyzer, however, proceed as follows:

1. Turn on the analyzer and allow to warm up for at least 30 minutes (see Section 3.3).
2. Turn SAMPLE/CAL toggle switch to the CAL position.
3. Introduce zero gas (instrument air) into the analyzer for a period of five minutes or more. Adjust CO flowmeter on lower panel to 2.0 liters per minute.
4. Adjust ZERO control for the CO monitor so that the meter reads zero.

5. Place the CHECK switch to the CHECK position and adjust the CAL knob to obtain a full scale deflection.

6. Connect the instrument air, turn off the CHECK switch, and introduce span gas (a known concentration of CO in nitrogen) into the analyzer for a period of five minutes or more. Adjust the span knob to the known concentration.

4.2 CALIBRATION OF THE OXYGEN ANALYZER

The Jaytec oxygen analyzer is essentially linear in response and a single-point calibration is sufficient to calibrate. Air is the most convenient "span gas" for the oxygen analyzer. A zero adjust is now provided with this analyzer since the technique used has an "absolute" zero. The span can be adjusted as follows.

1. Allow the analyzer to warm up for at least 30 minutes (see Section 3.4).

2. Switch the SAMPLE/CAL toggle switch to the CAL position.

3. Introduce span gas (instrument air) into the analyzer for a period of five minutes or more.

4. Adjust the SPAN control on the front panel to provide a meter reading of 21% oxygen.

5. Remove the instrument air from the system and switch the valve back to the SAMPLE position.

5.0 ROUTINE OPERATION

The system has been designed for unattended operation. Customer experience with the system will aid in establishing routine operating procedures. During the first days of operation, however, we recommend that customer personnel perform the following.

1. Observe the meter readings of the analyzers frequently and record in a log book.
2. Check zero and span of both analyzers daily.
3. Note temperature range inside the enclosure and readjust thermostat as required.
4. Observe general operation of the system and record irregularities in log book.
5. Make periodic checks of the alarms and adjust setpoints as required.

6.0 SERVICE AND MAINTENANCE

The sampling system should require a minimum of service and maintenance other than periodic cleaning of lines and components.

Recommended service:

Operation	Frequency
Clean check valve in pump head. Remove pump head (4 screws) and clean stainless steel flapper valve.	As required
Clean heater fan; remove louver and screen on left-hand side of case. Clean fan as required.	6 months

STORAGE LOCATION: 16 HWB AREA #1 - OIL SLUDGE CATEGORY NUMBER: 01 WAX/SOLVENT

PWA MANIFEST	GENER DEPT	GENER DATE	TYPE OF WASTE CONTAINER	STORAGE QTY	STORAGE WEIGHT	RECEIVED DATE/SHIFT	TREAT QTY	TREAT OR SHIP WT	ITEM IDENT	MATERIAL NUMBER	GENERIC NAME
132373	45624	102782	55 G SLUDGE LANDFILL	2	800	111082			3002		WAX/CHLORINATED SOLVENTS (SOLID)
141521	45630	032383	BARREL 55 G	3	740	060883			3002		WAX/CHLORINATED SOLVENTS (SOLID)
			*** TOTALS ***		1540						

US EPA New England
RCRA Document Management System
Image Target Sheet

RDMS Document ID # 2449

Facility Name: PRATT & WHITNEY - MAIN STREET

Facility ID#: CTD990672081

Phase Classification: R-1B

Purpose of Target Sheet:

[X] Oversized (in Site File) **[ ] Oversized (in Map Drawer)**

[ ] Page(s) Missing (Please Specify Below)

[ ] Privileged **[ ] Other (Provide Purpose Below)**

Description of Oversized Material, if applicable:

EXHIBIT AA: DRAWING PE-MC-682-E: C\VTP LAYOUT, PIPING SCHEMATIC

[ ] Map **[ ] Photograph** **[X] Other (Specify Below)**

FLOW CHART

*** Please Contact the EPA New England RCRA Records Center to View This Document ***

RCRA Part B Permit Application
United Technologies
Pratt & Whitney
CTD 990672081

EXHIBIT BB

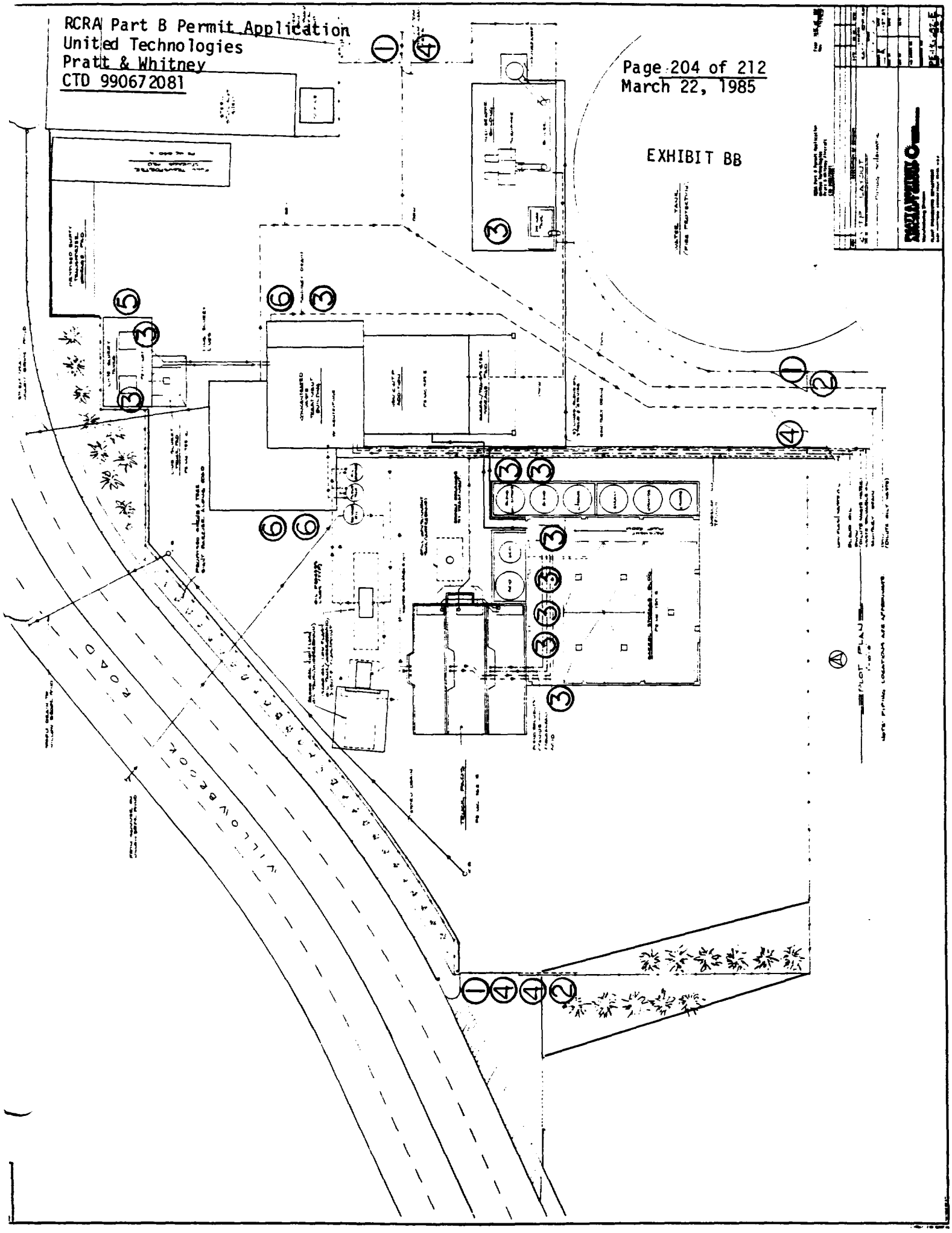


EXHIBIT BB (cont'd)

WORDING ON WARNING SIGNS

1

NOTICE
Authorized Personnel Only
Entry May be Dangerous

2

CAUTION
Entering Chemical
Treatment Area

3

CAUTION
No Smoking

4

EYE PROTECTION
Must Be Worn in this Area

5

DANGER
Unauthorized Personnel
Keep Out

6

NOTICE
Authorized Personnel Only

EXHIBIT CC

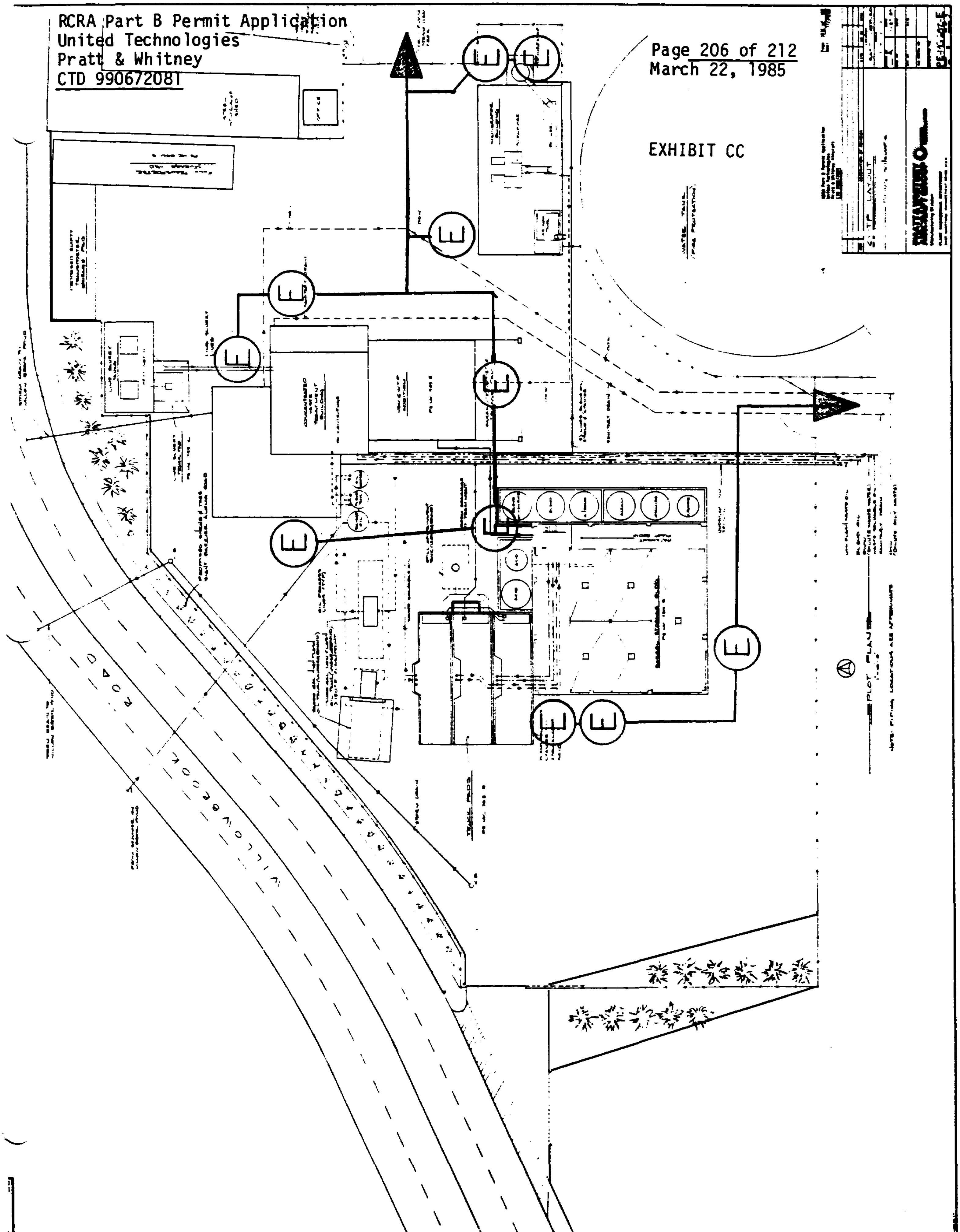
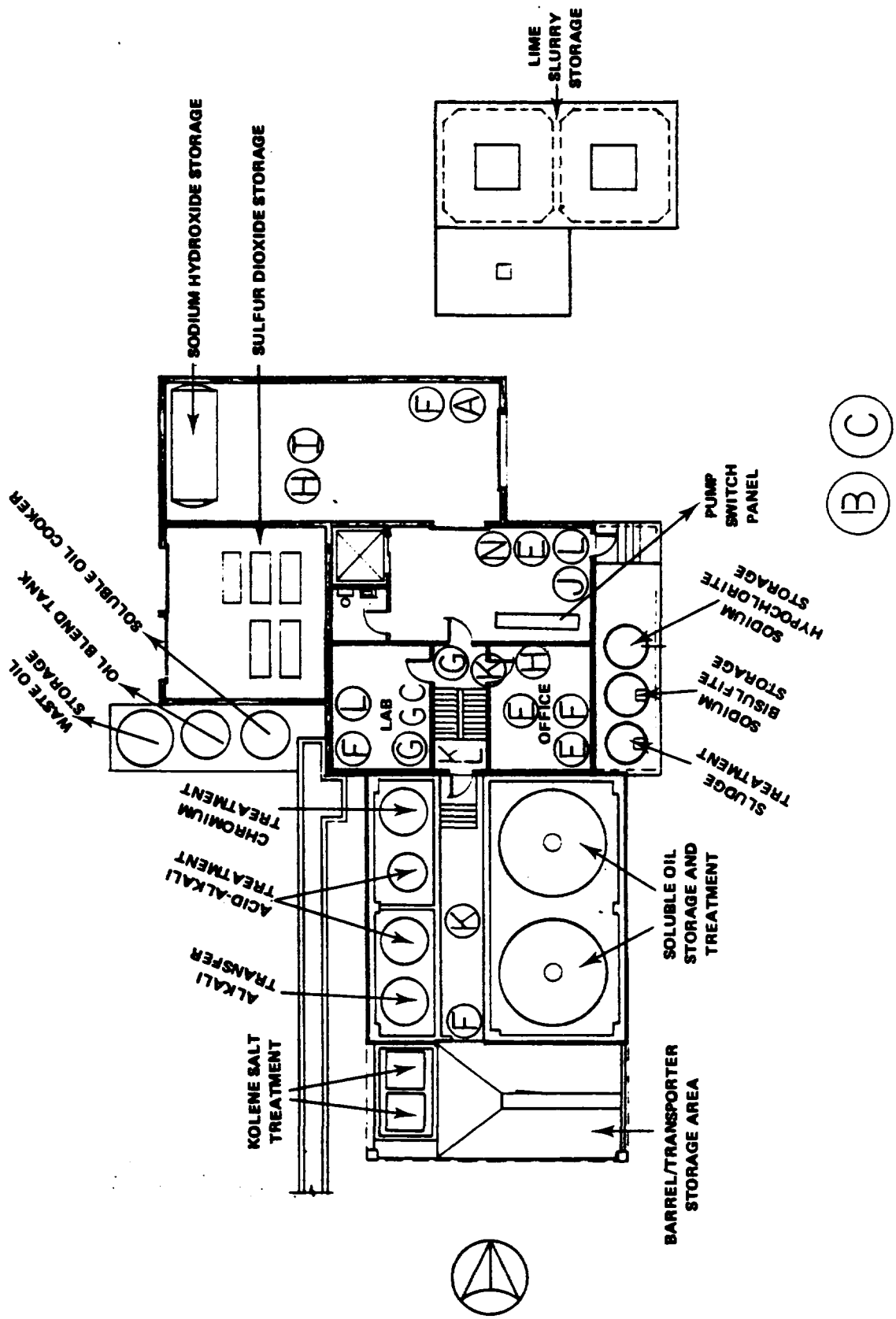


EXHIBIT DD

A. Shovels, rakes, brooms
B. Barrels
C. Soda Ash or absorbent materials
D. Sawdust
E. Telephone
F. PA system or speaker
G. Fire extinguisher
H. Protective clothing, face shields, boots, aprons or gloves
I. Respirators
J. Scott air packs
K. Emergency Shower
L. Emergency eye wash
M. Transporters
N. Pumps

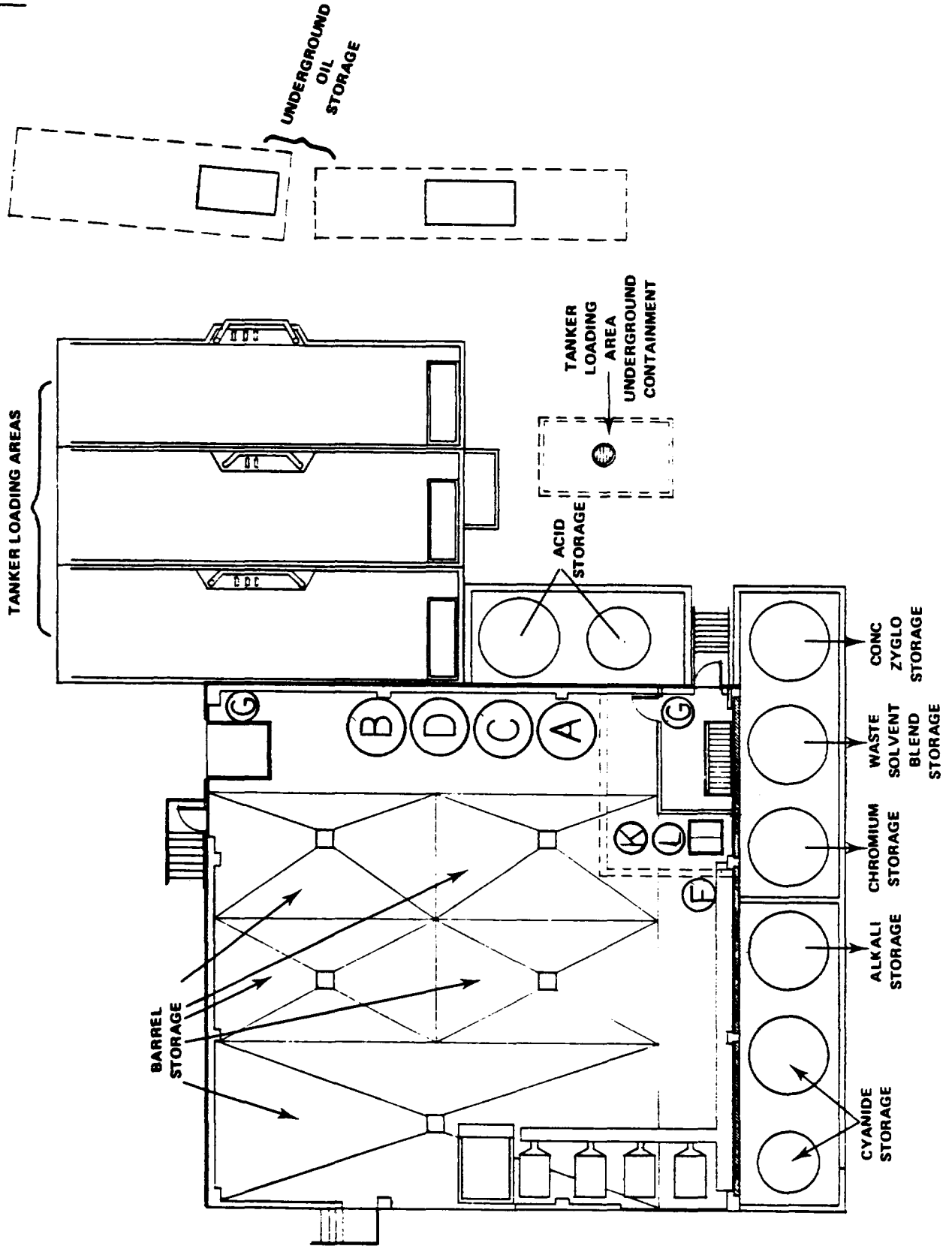
NOTE: No circle around letter indicates item present on another floor in the approximate location.

CONCENTRATED WASTE TREATMENT PLANT
MAIN BLDG.

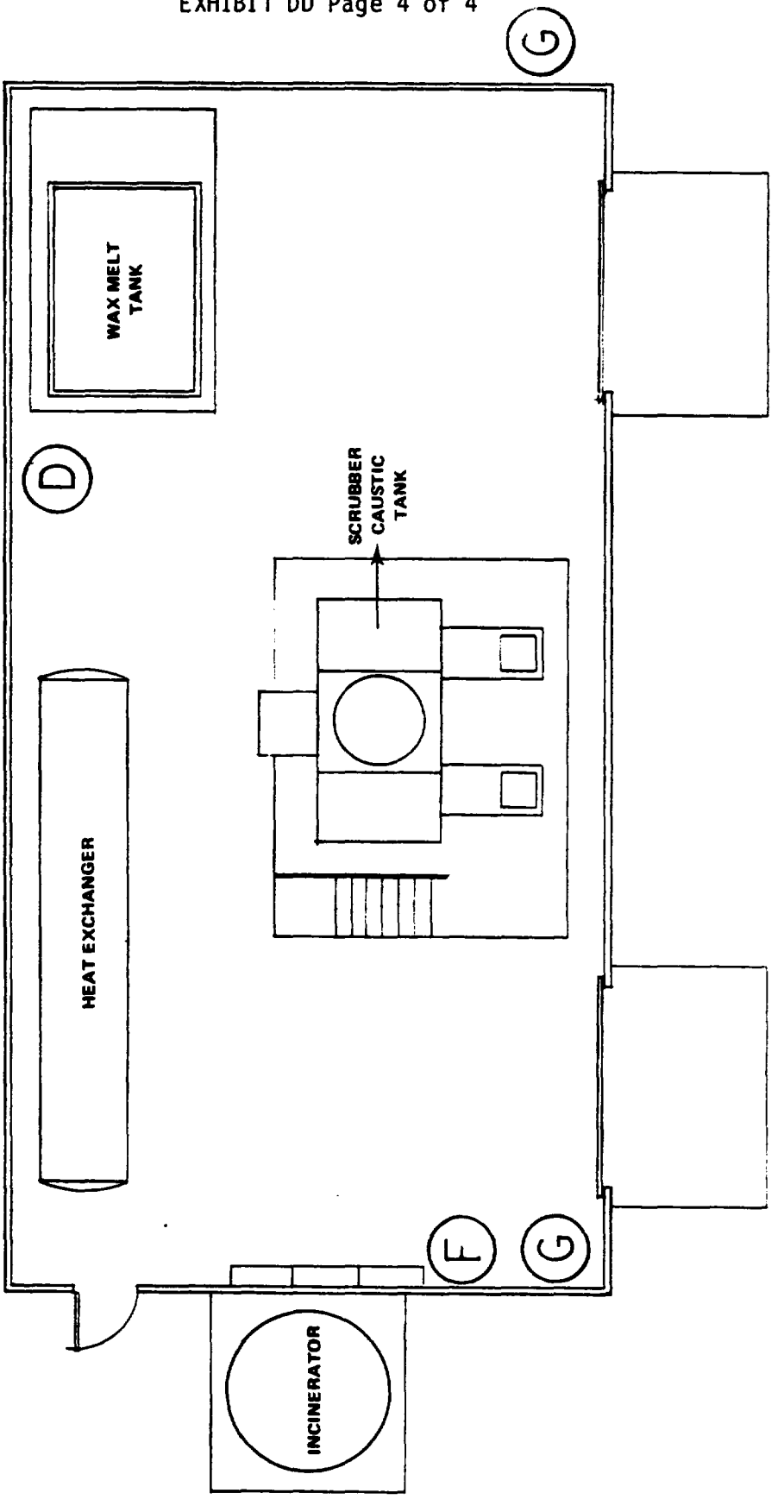


Revised: December, 1982

CONCENTRATED WASTE TREATMENT PLANT STORAGE AND HANDLING BLDG.



CONCENTRATED WASTE TREATMENT PLANT
INCINERATOR BLDG.



AVERILL
ENVIRONMENTAL LABORATORY INC

P.O. Box 474, Riverdale Farms
Route 10N, Avon, CT 06001
(203) 677-6283

Lawton S. Averill, Co-Director
Eric W. Snyder, Chemist
Catherine M. Pintavalle, Co-Director

EXHIBIT EE

REPORT ON LABORATORY EXAMINATIONS

To Client: Pratt & Whitney Aircraft Division
East Hartford, CT 06108
Att: John Russell

Date: November 12, 1984

SAMPLE DATA: Collected By:

SAMPLE NO.	DESCRIPTION OF SAMPLE
289-21-594	Sample of waste paint collected at Pratt & Whitney Aircraft on October 3, 1984 by L. Lucia.

LABORATORY FINDINGS: (milligrams per liter, mg/l, except as noted)

ANALYSIS FOR	SAMPLE NO.				
	289-21-594				
Total Solids, percent	36.9				

Catherine M. Pintavalle
Averill Environmental Laboratory

CERTIFICATION

"I certify under penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalities for submitting false information, including the possibility of fine and imprisonment."

UNITED TECHNOLOGIES CORPORATION
Pratt & Whitney Group
Manufacturing Division

DATE 12/3/85 SIGNATURE Karl M. Thomas

RCRA Part B Permit Applications
United Technologies
Pratt & Whitney
CID 990672081

REVISED: December 4, 1985

APPENDIX I

RESOURCE CONSERVATION AND RECOVERY ACT (RCRA) HAZARDOUS WASTE MANAGEMENT FACILITY - PART A APPLICATION REVISION

This RCRA Part A Application revision is required to be consistent with the Part B Application submission. The following is a summary of the changes and reasons they were made:

1. All treatment tanks (process code T01) have been removed, due to exclusions under 40 CFR 122.21 (d) (2) (vi) and 264.1 (g) (6).

2. The rotary kiln incinerator listed in the November 19, 1981 previous Part A revision has been removed from the application. This incinerator will not burn any hazardous waste.

3. Section IV "Description of Hazardous Wastes" has been revised according to latest regulations.

4. Section III surface impoundments (process code S04) has been deleted from the November 18, 1980 Part A Application in both this revision and our previous revision dated November 19, 1981. No wastes were added to any of the impoundments since 1976. The impoundments were emptied and the wastes were reprocessed through the P&W Colt Street site (EPA ID No. CID 00844399) for storage and subsequent disposal at the PWA Metal Hydroxide Landfill in Middletown, Connecticut (EPA ID No. CID 003935904).

5. Section IV "Description of Hazardous Wastes" has been revised to include information inadvertently omitted from the previous revision.

6. Section III has been revised correcting a typographical error in the previous submittal.

Please print or type in the unshaded areas only (fill-in areas are spaced for elite type, i.e., 12 characters/inch).

Form Approved OMB No. 158-R0175

FORM 1 GENERAL | EPA | U.S. ENVIRONMENTAL PROTECTION AGENCY

GENERAL INFORMATION

Consolidated Permits Program

(Read the "General Instructions" before starting.)

I. EPA I.D. NUMBER

F | C T D 9 9 0 6 7 2 0 8 1 | D

LABEL ITEMS

I. I.D. NUMBER

III. FACILITY NAME

V. FACILITY MAILING ADDRESS

VI. FACILITY LOCATION

PLEASE PLACE LABEL IN THIS SPACE

GENERAL INSTRUCTIONS

If a preprinted label has been provided, affix it in the designated space. Review the information carefully; if any of it is incorrect, cross through it and enter the correct data in the appropriate fill-in area below. Also, if any of the preprinted data is absent *(the area to the left of the label space lists the information that should appear)*, please provide it in the proper fill-in area(s) below. If the label is complete and correct, you need not complete Items I, III, V, and VI *(except VI-B which must be completed regardless)*. Complete all items if no label has been provided. Refer to the instructions for detailed item descriptions and for the legal authorizations under which this data is collected.

II. POLLUTANT CHARACTERISTICS

INSTRUCTIONS: Complete A through J to determine whether you need to submit any permit application forms to the EPA. If you answer "yes" to any questions, you must submit this form and the supplemental form listed in the parenthesis following the question. Mark "X" in the box in the third column if the supplemental form is attached. If you answer "no" to each question, you need not submit any of these forms. You may answer "no" if your activity is excluded from permit requirements; see Section C of the instructions. See also, Section D of the instructions for definitions of bold-faced terms.

SPECIFIC QUESTIONS	YES	NO	FORM ATTACHED
A. Is this facility a **publicly owned treatment works** which results in a **discharge** to **waters of the U.S.**? (FORM 2A)		X	
B. Does or will this facility *(either existing or proposed)* include a **concentrated animal feeding operation** or **aquatic animal production facility** which results in a **discharge** to **waters of the U.S.**? (FORM 2B)		X	
C. Is this a facility which currently results in **discharges** to **waters of the U.S.** other than those described in A or B above? (FORM 2C)	X		
D. Is this a proposed facility *(other than those described in A or B above)* which will result in a **discharge** to **waters of the U.S.**? (FORM 2D)		X	
E. Does or will this facility treat, store, or dispose of **hazardous wastes**? (FORM 3)	X		X
F. Do you or will you inject at this facility industrial or municipal effluent below the lowermost stratum containing, within one quarter mile of the well bore, underground sources of drinking water? (FORM 4)		X	
G. Do you or will you inject at this facility any produced water or other fluids which are brought to the surface in connection with conventional oil or natural gas production, inject fluids used for enhanced recovery of oil or natural gas, or inject fluids for storage of liquid hydrocarbons? (FORM 4)		X	
H. Do you or will you inject at this facility fluids for special processes such as mining of sulfur by the Frasch process, solution mining of minerals, in situ combustion of fossil fuel, or recovery of geothermal energy? (FORM 4)		X	
I. Is this facility a proposed **stationary source** which is one of the 28 industrial categories listed in the instructions and which will potentially emit 100 tons per year of any air pollutant regulated under the Clean Air Act and may affect or be located in an **attainment area**? (FORM 5)		X	
J. Is this facility a proposed **stationary source** which is NOT one of the 28 industrial categories listed in the instructions and which will potentially emit 250 tons per year of any air pollutant regulated under the Clean Air Act and may affect or be located in an **attainment area**? (FORM 5)		X	

III. NAME OF FACILITY

1 SKIP PRATT & WHITNEY AIRCRAFT GROUP MD & CPD

IV. FACILITY CONTACT

A. NAME & TITLE (last, first, & title)	B. PHONE (area code & no.)
WICKWIRE JAMES D PLANT ENG	203 565 4887

V. FACILITY MAILING ADDRESS

A. STREET OR P.O. BOX

400 MAIN STREET

B. CITY OR TOWN	C. STATE	D. ZIP CODE
EAST HARTFORD	CT	06108

VI. FACILITY LOCATION

A. STREET, ROUTE NO. OR OTHER SPECIFIC IDENTIFIER

400 MAIN STREET

B. COUNTY NAME

HARTFORD

C. CITY OR TOWN	D. STATE	E. ZIP CODE	F. COUNTY CODE (if known)
EAST HARTFORD	CT	06108	

EPA Form 3510-1 (6-80)

CONTINUE ON REVERSE

CONTINUED FROM THE FRONT

VII. SIC CODES (4-digit, in order of priority)

A. FIRST	B. SECOND
3724 (specify) JET AIRCRAFT ENGINES AND ENGINE PARTS	(specify)
C. THIRD	**D. FOURTH**
(specify)	(specify)

VIII. OPERATOR INFORMATION

A. NAME

UNITED TECH PRATT & WHITNEY AIRCRAFT GR

B. Is the name listed in Item VIII-A also the owner? [X] YES [ ] NO

C. STATUS OF OPERATOR (Enter the appropriate letter into the answer box; if "Other", specify.)

F = FEDERAL; S = STATE; P = PRIVATE; M = PUBLIC (other than federal or state); O = OTHER (specify)

(specify)

D. PHONE (area code & no.): A 203 565 4887

E. STREET OR P.O. BOX

400 MAIN STREET

F. CITY OR TOWN	G. STATE	H. ZIP CODE
EAST HARTFORD	CT	06108

IX. INDIAN LAND

Is the facility located on Indian lands? [ ] YES [X] NO

X. EXISTING ENVIRONMENTAL PERMITS

A. NPDES (Discharges to Surface Water)	D. PSD (Air Emissions from Proposed Sources)	
9 N CT0001376	9 P	
B. UIC (Underground Injection of Fluids)	**E. OTHER (specify)**	
9 U	9 53-0020	(specify) CONNECTICUT STATE EMISSIONS PERMIT
C. RCRA (Hazardous Wastes)	**E. OTHER (specify)**	
9	9 53-0017	(specify) SEE ATTACHMENT

XI. MAP

Attach to this application a topographic map of the area extending to at least one mile beyond property bounderies. The map must show the outline of the facility, the location of each of its existing and proposed intake and discharge structures, each of its hazardous waste treatment, storage, or disposal facilities, and each well where it injects fluids underground. Include all springs, rivers and other surface water bodies in the map area. See instructions for precise requirements.

XII. NATURE OF BUSINESS (provide a brief description)

MANUFACTURER OF JET AIRCRAFT ENGINES AND ENGINE PARTS.

XIII. CERTIFICATION (see instructions)

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this application and all attachments and that, based on my inquiry of those persons immediately responsible for obtaining the information contained in the application, I believe that the information is true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment.

A. NAME & OFFICIAL TITLE (type or print)	B. SIGNATURE	C. DATE SIGNED
J. P. Balaguer / Executive Vice President Manufacturing Division		4/20/83

COMMENTS FOR OFFICIAL USE ONLY

C

INDUSTRIAL WASTE INCINERATOR
STORAGE
CONCENTRATED WASTE
TREATMENT

009
008
007

002 003 004

001

COLT STREET FACILITY

015
014
013
012
011
010

PENT ROAD FACILITY

OIL YARD

RINSEWATER
PRETREATMENT

005

006

MAIN STREET FACILIT

CONNECTICUT

RIVER

HOCKANUM

INTERCHANGE

EAST HARTFORD

Base: USGS Manchester, Glastonbury, Hartford North, Hartford South, Connecticut

PRATT & WHITNEY AIRCRAFT GROUP
EAST HARTFORD, CONNECTICUT

400 MAIN STREET
LOCATION PLAN

SCALE 1:24000

ATTACHMENT I, FORM I
EPA I.D. NO. CTD99067081

X EXISTING ENVIRONMENTAL PERMITS (Cont'd)

E. OTHER

P 053-0022	CT STATE EMISSIONS PERMIT			
P 053-0024[1]	"	"	"	"
P 053-0025[1]	"	"	"	"
P 053-0019	"	"	"	"

1 - PERMIT TO CONSTRUCT

Please print or type in the unshaded areas only
(fill—in areas are spaced for elite type, i.e., 12 characters/inch).

Form Approved OMB No. 158-S80004

FORM 3 RCRA | **EPA**

U.S. ENVIRONMENTAL PROTECTION AGENCY

HAZARDOUS WASTE PERMIT APPLICATION

Consolidated Permits Program

(This information is required under Section 3005 of RCRA.)

I. EPA I.D. NUMBER

F	C	T	D	9	9	0	6	7	2	0	8	1	T/A	1

FOR OFFICIAL USE ONLY

APPLICATION APPROVED	DATE RECEIVED (yr., mo., & day)	COMMENTS

II. FIRST OR REVISED APPLICATION

Place an "X" in the appropriate box in A or B below *(mark one box only)* to indicate whether this is the first application you are submitting for your facility or a revised application. If this is your first application and you already know your facility's EPA I.D. Number, or if this is a revised application, enter your facility's EPA I.D. Number in Item I above.

A. FIRST APPLICATION *(place an "X" below and provide the appropriate date)*

☐ 1. EXISTING FACILITY *(See instructions for definition of "existing" facility. Complete item below.)*

FOR EXISTING FACILITIES, PROVIDE THE DATE (yr., mo., & day) OPERATION BEGAN OR THE DATE CONSTRUCTION COMMENCED *(use the boxes to the left)*

YR.	MO.	DAY
3 0		

☐ 2. NEW FACILITY *(Complete item below.)*

FOR NEW FACILITIES, PROVIDE THE DATE (yr., mo., & day) OPERATION BEGAN OR IS EXPECTED TO BEGIN

YR.	MO.	DAY

B. REVISED APPLICATION *(place an "X" below and complete Item I above)*

☒ 1. FACILITY HAS INTERIM STATUS

☐ 2. FACILITY HAS A RCRA PERMIT

III. PROCESSES — CODES AND DESIGN CAPACITIES

A. PROCESS CODE — Enter the code from the list of process codes below that best describes each process to be used at the facility. Ten lines are provided for entering codes. If more lines are needed, enter the code(s) in the space provided. If a process will be used that is not included in the list of codes below, then describe the process *(including its design capacity)* in the space provided on the form *(Item III-C)*.

B. PROCESS DESIGN CAPACITY — For each code entered in column A enter the capacity of the process.

1. AMOUNT — Enter the amount.
2. UNIT OF MEASURE — For each amount entered in column B(1), enter the code from the list of unit measure codes below that describes the unit of measure used. Only the units of measure that are listed below should be used.

PROCESS	PROCESS CODE	APPROPRIATE UNITS OF MEASURE FOR PROCESS DESIGN CAPACITY
Storage:		
CONTAINER *(barrel, drum, etc.)*	S01	GALLONS OR LITERS
TANK	S02	GALLONS OR LITERS
WASTE PILE	S03	CUBIC YARDS OR CUBIC METERS
SURFACE IMPOUNDMENT	S04	GALLONS OR LITERS
Disposal:		
INJECTION WELL	D79	GALLONS OR LITERS
LANDFILL	D80	ACRE-FEET *(the volume that would cover one acre to a depth of one foot)* OR HECTARE-METER
LAND APPLICATION	D81	ACRES OR HECTARES
OCEAN DISPOSAL	D82	GALLONS PER DAY OR LITERS PER DAY
SURFACE IMPOUNDMENT	D83	GALLONS OR LITERS
Treatment:		
TANK	T01	GALLONS PER DAY OR LITERS PER DAY
SURFACE IMPOUNDMENT	T02	GALLONS PER DAY OR LITERS PER DAY
INCINERATOR	T03	TONS PER HOUR OR METRIC TONS PER HOUR; GALLONS PER HOUR OR LITERS PER HOUR
OTHER *(Use for physical, chemical, thermal or biological treatment processes not occurring in tanks, surface impoundments or incinerators. Describe the processes in the space provided; Item III-C.)*	T04	GALLONS PER DAY OR LITERS PER DAY

UNIT OF MEASURE	UNIT OF MEASURE CODE
GALLONS	G
LITERS	L
CUBIC YARDS	Y
CUBIC METERS	C
GALLONS PER DAY	U
LITERS PER DAY	V
TONS PER HOUR	D
METRIC TONS PER HOUR	W
GALLONS PER HOUR	E
LITERS PER HOUR	H
ACRE-FEET	A
HECTARE-METER	F
ACRES	B
HECTARES	Q

EXAMPLE FOR COMPLETING ITEM III *(shown in line numbers X-1 and X-2 below)*: A facility has two storage tanks, one tank can hold 200 gallons and the other can hold 400 gallons. The facility also has an incinerator that can burn up to 20 gallons per hour.

C	D	U	P										T/A	1

LINE NUMBER	A. PROCESS CODE (from list above)	B. PROCESS DESIGN CAPACITY 1. AMOUNT (specify)	B. PROCESS DESIGN CAPACITY 2. UNIT OF MEASURE (enter code)	FOR OFFICIAL USE ONLY	LINE NUMBER	A. PROCESS CODE (from list above)	B. PROCESS DESIGN CAPACITY 1. AMOUNT	B. PROCESS DESIGN CAPACITY 2. UNIT OF MEASURE (enter code)	FOR OFFICIAL USE ONLY
X-1	S02	600	G		5				
X-2	T03	20	E		6				
1	S01	61360	G		7				
2	S02	27300	G		8				
3	T03	48	E		9				
4					10				

Continued from the front.

III. PROCESSES *(continued)*

C. SPACE FOR ADDITIONAL PROCESS CODES OR FOR DESCRIBING OTHER PROCESSES *(code "T04")*. FOR EACH PROCESS ENTERED HERE INCLUDE DESIGN CAPACITY.

IV. DESCRIPTION OF HAZARDOUS WASTES

A. **EPA HAZARDOUS WASTE NUMBER** — Enter the four–digit number from 40 CFR, Subpart D for each listed hazardous waste you will handle. If you handle hazardous wastes which are not listed in 40 CFR, Subpart D, enter the four–digit number*(s)* from 40 CFR, Subpart C that describes the characteristics and/or the toxic contaminants of those hazardous wastes.

B. **ESTIMATED ANNUAL QUANTITY** — For each listed waste entered in column A estimate the quantity of that waste that will be handled on an annual basis. For each characteristic or toxic contaminant entered in column A estimate the total annual quantity of all the non–listed waste*(s)* that will be handled which possess that characteristic or contaminant.

C. **UNIT OF MEASURE** — For each quantity entered in column B enter the unit of measure code. Units of measure which must be used and the appropriate codes are:

ENGLISH UNIT OF MEASURE	CODE	METRIC UNIT OF MEASURE	CODE
POUNDS	P	KILOGRAMS	K
TONS	T	METRIC TONS	M

If facility records use any other unit of measure for quantity, the units of measure must be converted into one of the required units of measure taking into account the appropriate density or specific gravity of the waste.

D. **PROCESSES**

1. **PROCESS CODES:**
   For listed hazardous waste: For each listed hazardous waste entered in column A select the code*(s)* from the list of process codes contained in Item III to indicate how the waste will be stored, treated, and/or disposed of at the facility.
   For non–listed hazardous wastes: For each characteristic or toxic contaminant entered in column A, select the code*(s)* from the list of process codes contained in Item III to indicate all the processes that will be used to store, treat, and/or dispose of all the non–listed hazardous wastes that possess that characteristic or toxic contaminant.
   Note: Four spaces are provided for entering process codes. If more are needed: (1) Enter the first three as described above; (2) Enter "000" in the extreme right box of Item IV-D(1); and (3) Enter in the space provided on page 4, the line number and the additional code*(s)*.

2. **PROCESS DESCRIPTION:** If a code is not listed for a process that will be used, describe the process in the space provided on the form.

NOTE: HAZARDOUS WASTES DESCRIBED BY MORE THAN ONE EPA HAZARDOUS WASTE NUMBER — Hazardous wastes that can be described by more than one EPA Hazardous Waste Number shall be described on the form as follows:

1. Select one of the EPA Hazardous Waste Numbers and enter it in column A. On the same line complete columns B,C, and D by estimating the total annual quantity of the waste and describing all the processes to be used to treat, store, and/or dispose of the waste.
2. In column A of the next line enter the other EPA Hazardous Waste Number that can be used to describe the waste. In column D(2) on that line enter "included with above" and make no other entries on that line.
3. Repeat step 2 for each other EPA Hazardous Waste Number that can be used to describe the hazardous waste.

EXAMPLE FOR COMPLETING ITEM IV *(shown in line numbers X-1, X-2, X-3, and X-4 below)* — A facility will treat and dispose of an estimated 900 pounds per year of chrome shavings from leather tanning and finishing operation. In addition, the facility will treat and dispose of three non–listed wastes. Two wastes are corrosive only and there will be an estimated 200 pounds per year of each waste. The other waste is corrosive and ignitable and there will be an estimated 100 pounds per year of that waste. Treatment will be in an incinerator and disposal will be in a landfill.

LINE NO.	A. EPA HAZARD. WASTE NO. (enter code)	B. ESTIMATED ANNUAL QUANTITY OF WASTE	C. UNIT OF MEASURE (enter code)	D. PROCESSES 1. PROCESS CODES (enter)	D. PROCESSES 2. PROCESS DESCRIPTION (if a code is not entered in D(1))
X-1	K054	900	P	T03 D80	
X-2	D002	400	P	T03 D80	
X-3	D001	100	P	T03 D80	
X-4	D002				included with above

Continued from page 2.

NOTE: Photocopy this page before completing if you have more than 26 wastes to list.

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EPA I.D. NUMBER (enter from page 1)														FOR OFFICIAL USE ONLY												
W	C	T	D	9	9	0	6	7	2	0	8	1	T/A 1	C	W	DUP									T/A 2	C	DUP

IV. DESCRIPTION OF HAZARDOUS WASTES (continued)

LINE NO.	A. EPA HAZARD. WASTE NO. (enter code)	B. ESTIMATED ANNUAL QUANTITY OF WASTE	C. UNIT OF MEASURE (enter code)	D. PROCESSES 1. PROCESS CODES (enter)	D. PROCESSES 2. PROCESS DESCRIPTION (if a code is not entered in D(1))
1	F 0 0 7	* 370	T	S 0 1 S 0 2 T 0 3	
2	F 0 0 8				Included with line 1 above
3	F 0 0 9				"
4	P 0 2 9				"
5	P 0 3 0				"
6	P 0 9 8				"
7	P 1 0 6				"
8	D 0 0 2	* 6600	T	S 0 1 S 0 2	
9	D 0 0 3				Included with line 8 above
10	D 0 0 4				"
11	D 0 0 5				"
12	D 0 0 6				"
13	D 0 0 7				"
14	D 0 0 8				"
15	D 0 0 9				"
16	D 0 1 0				"
17	D 0 1 1				"
18	U 1 3 3				"
19	U 1 3 4				"
20	U 1 8 8				"
21	U 2 0 1				"
22	F 0 0 1	* 370	T	S 0 1 S 0 2 T 0 3	
23	F 0 0 2				Included with line 22 above.
24	F 0 0 3				Note: Lines 22 and 23 comprise about 90% of the annual quantity
25	F 0 0 4				"
26	F 0 0 5				"

Continued from page 2.

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EPA I.D. NUMBER (enter from page 1)															FOR OFFICIAL USE ONLY														
W	C	T	D	9	9	0	6	7	2	0	8	1		1	W													2	DUP	

V. DESCRIPTION OF HAZARDOUS WASTES (continued)

LINE NO.	A. EPA HAZARD. WASTE NO. (enter code)	B. ESTIMATED ANNUAL QUANTITY OF WASTE	C. UNIT OF MEASURE (enter code)	D. PROCESSES 1. PROCESS CODES (enter)	D. PROCESSES 2. PROCESS DESCRIPTION (If a code is not entered in D(1))
1	U002				"
2	U021				Included with line 22 page 3A.
3	U031				Note: Lines 22 and 23 comprise about 90% of the annual quantity.
4	U044				"
5	U052				"
6	U054				"
7	U055				"
8	U056				"
9	U077				"
10	U080				"
11	U108				"
12	U112				"
13	U121				"
14	U122				"
15	U138				"
16	U140				"
17	U144				"
18	U154				"
19	U159				"
20	U161				"
21	U165				"
22	U210				"
23	U211				"
24	U220				"
25	U223				"
26	U226				"

Continued from page 2.

NOTE: Photocopy this page before completing if you have more than 26 wastes to list.

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EPA I.D. NUMBER (enter from page 1)		FOR OFFICIAL USE ONLY	
C T D 9 9 0 6 7 2 0 8 1	F/A: 1	W DUP	T/A: 2 DUP

IV. DESCRIPTION OF HAZARDOUS WASTES (continued)

LINE NO.	A. EPA HAZARD. WASTE NO. (enter code)	B. ESTIMATED ANNUAL QUANTITY OF WASTE	C. UNIT OF MEASURE (enter code)	D. PROCESSES 1. PROCESS CODES (enter)	D. PROCESSES 2. PROCESS DESCRIPTION (If a code is not entered in D(1))
1	U228				"
2	U239				"
3					
4					
5					
6					
7					
8					
9					
10					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
25					
26					

Continued from the front.

IV. DESCRIPTION OF HAZARDOUS WASTES *(continued)*

E. USE THIS SPACE TO LIST ADDITIONAL PROCESS CODES FROM ITEM D(1) ON PAGE 3.

EPA I.D. NO. *(enter from page 1)*

C T D 9 9 0 6 7 2 0 8 1 6

V. FACILITY DRAWING

All existing facilities must include in the space provided on page 5 a scale drawing of the facility *(see instructions for more detail)*.

VI. PHOTOGRAPHS

All existing facilities must include photographs *(aerial or ground-level)* that clearly delineate all existing structures; existing storage, treatment and disposal areas; and sites of future storage, treatment or disposal areas *(see instructions for more detail)*.

VII. FACILITY GEOGRAPHIC LOCATION

LATITUDE *(degrees, minutes, & seconds)*	LONGITUDE *(degrees, minutes, & seconds)*
41 45 00	72 38 01

VIII. FACILITY OWNER

[X] A. If the facility owner is also the facility operator as listed in Section VIII on Form 1, "General Information", place an "X" in the box to the left and skip to Section IX below.

[ ] B. If the facility owner is not the facility operator as listed in Section VIII on Form 1, complete the following items:

1. NAME OF FACILITY'S LEGAL OWNER	2. PHONE NO. *(area code & no.)*

3. STREET OR P.O. BOX	4. CITY OR TOWN	5. ST.	6. ZIP CODE

IX. OWNER CERTIFICATION

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this and all attached documents, and that based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the submitted information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment.

A. NAME *(print or type)*	B. SIGNATURE	C. DATE SIGNED
Karl M. Thomas Executive Vice President Manufacturing	Karl M Thomas	December 4, 1985

X. OPERATOR CERTIFICATION

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this and all attached documents, and that based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the submitted information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment.

A. NAME *(print or type)*	B. SIGNATURE	C. DATE SIGNED

V. FACILITY DRAWING (see page 4)